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PULLMAN

Matched Equipment for INTERNATIONAL power

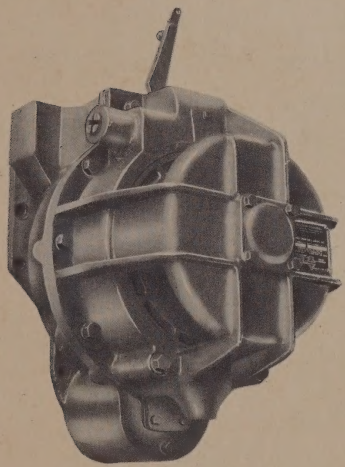
Operator's Handbook

FOR MODEL	HHL PCU
INTERNATIONAL TRACTOR	TD-18
PULLMAN-STANDARD SERIAL Nº	
ORDER Nº	

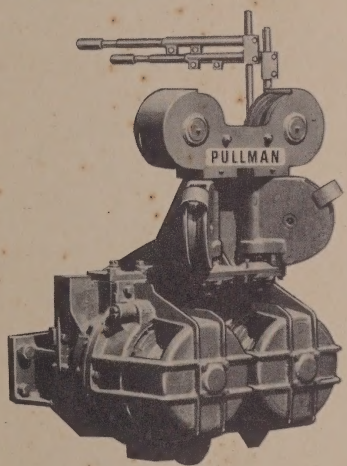
PULLMAN-STANDARD Car Manufacturing Company
"WORLD'S LARGEST BUILDERS OF ROLLING STOCK"
79 East Adams Street • Chicago 3, Ill

Operator's Handbook for PULLMAN

CABLE POWER CONTROL UNITS
MODELS H, HH, & HHL



MODEL H



MODELS HH & HHL

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OPERATION
INSTALLATION
LUBRICATION (inc. equipment storage)
CABLE ATTACHMENTS
ADJUSTMENT
MAINTENANCE
PARTS

see your INTERNATIONAL INDUSTRIAL POWER DISTRIBUTOR *for parts and service*

PULLMAN-STANDARD Car Manufacturing Company
"WORLD'S LARGEST BUILDERS OF ROLLING STOCK"
79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS

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Form 52102B

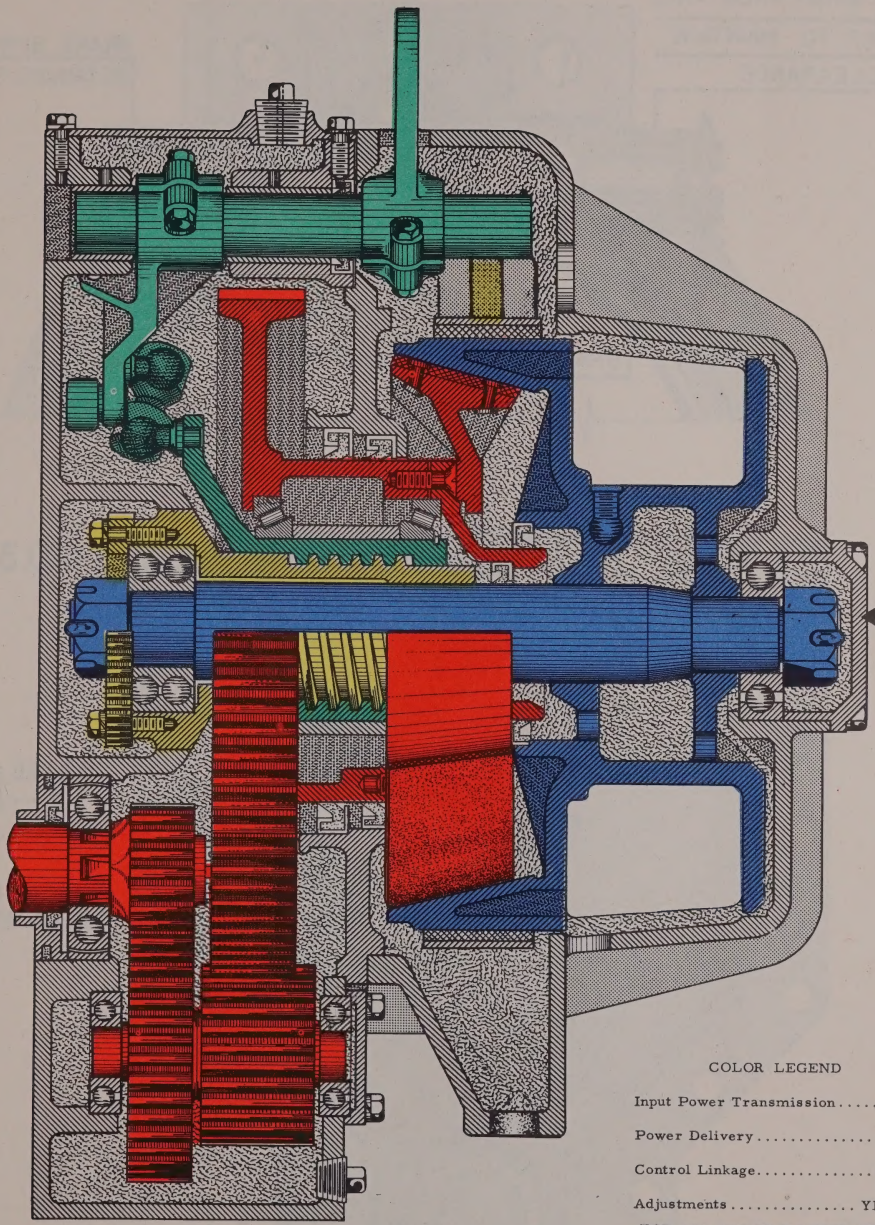
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

REFERENCE ILLUSTRATION

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

NO. 1



COLOR LEGEND

Input Power Transmission.....RED

Power Delivery.....BLUE

Control Linkage.....GREEN

Adjustments.....YELLOW

FOR ALL COLOR ILLUSTRATIONS

Form 52102C

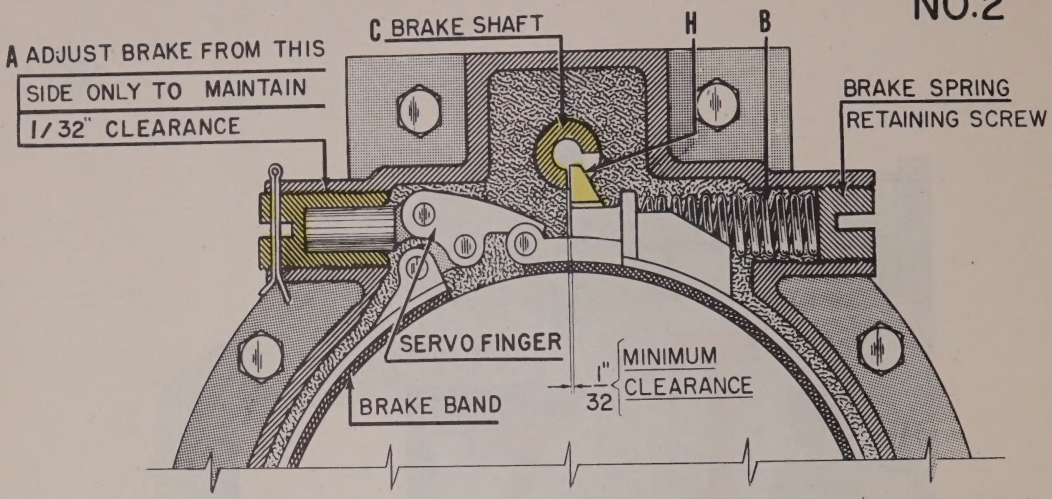
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

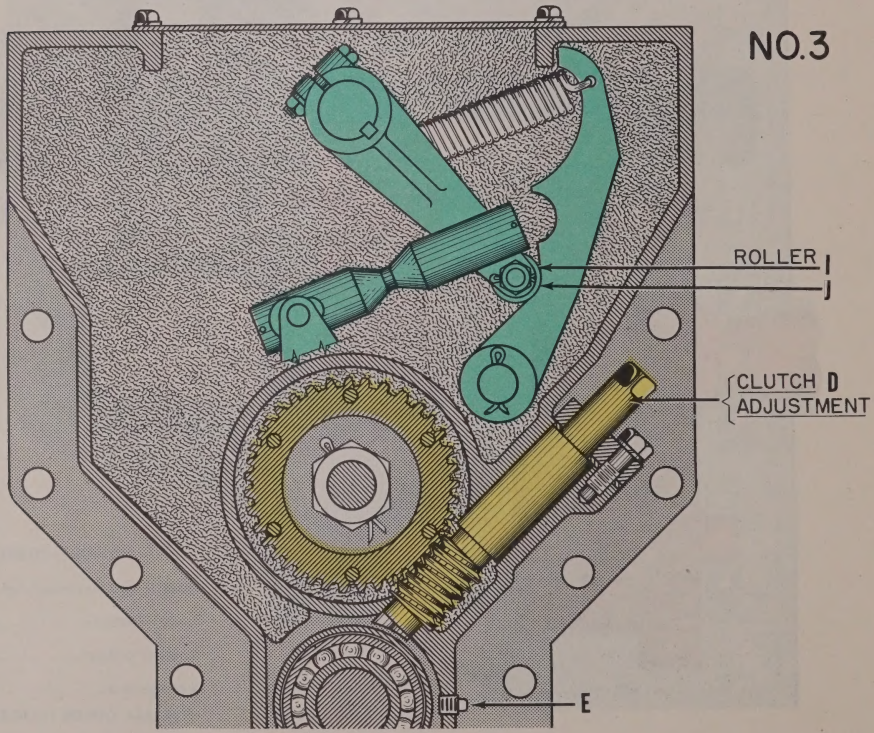
REFERENCE ILLUSTRATIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

NO.2



NO.3



Form 52102D

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Form 52102E

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

OPERATION INSTRUCTIONS

"PULLMAN" MODEL H, HH & HHL POWER CONTROL UNITS

I General

All Pullman Power Control Units are ruggedly constructed and give long-life service when properly operated and proper adjustment is maintained.

Because these Power Control Units use a self-energizing brake, both the clutch and the brake of each drum are controlled by one lever. When engaging the clutch, the rotation of the cable drum automatically releases the brake band, and, when the clutch is disengaged, the spring pressure automatically engages the brake.

The single drum, or the front-tractor-mounted units, have one control lever. The rear mounted units, which are double drum units, however, have two control levers (one for each drum).

The levers normally sit in what is known as the neutral position. This position is when the clutch is fully disengaged and the self-energizing brake is in a holding position. While in this position, a 1/32 minimum clearance (see Reference Illustration #2) is required between the brake shaft and brake band lug to insure proper holding of the brake.

II The Operation of Power Control Units

NOTE: Before operating any Power Control Unit, fill with oil as specified and check level at plug "E" (see Reference Illustration #3).

NOTE: Before operating any Power Control Unit be certain that all adjustments listed have been made. Failure to do so may damage unit seriously.

The following applies to both front and rear units.

To engage the clutch or wind in cable, the operator must pull the control lever, from neutral position, toward himself. Pulling the control lever toward the operator actuates the friction screw and nut, which in turn move the clutch plate into an engaged position within the cable drum. A quick snap action when pulling the control lever to engage the clutch insures a more positive contact between the clutch facing and the cable drum. A quick snap action also lessens the clutch slippage, thus preventing excessive heat and thereby lengthening the life of the unit.

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PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

OPERATION INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

To release the brake or to let out cable, the operator must push the control lever away from himself slowly to the maximum extent of the few inches necessary to release the brake. Pushing the control lever away first closes the 1/32 minimum clearance between the brake shaft and brake band lug and then releases the brake band from around the drum.

A definite position, known as the toggle-out position, is provided for free spooling of the drum. This position is obtained by pushing the control lever away from the operator, beyond the normal brake release position, until it snaps into a fixed position from which a considerable pull is required to extract it. This position is used on front and rear model units for replacement of cable. During scraper operation it is also used on the left-hand drum of rear units to allow scraper gate to close while lifting the bowl with the right-hand drum.

CAUTION: DO NOT PUSH THE CONTROL LEVER TOO FAR DURING NORMAL OPERATION. SO DOING WILL PERMIT DRUM TO UNWIND TOO FREELY.

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Form 52102G

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Form 52102H

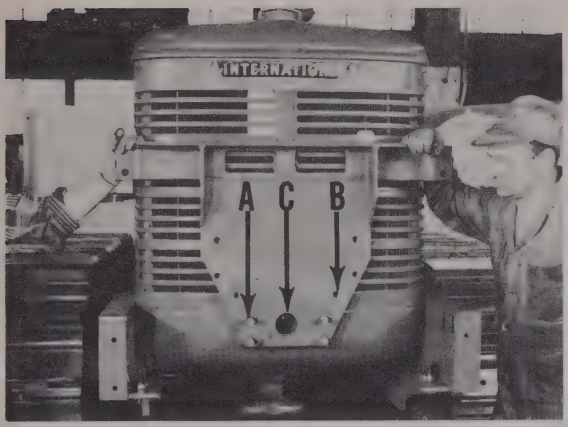
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

INSTALLATION INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

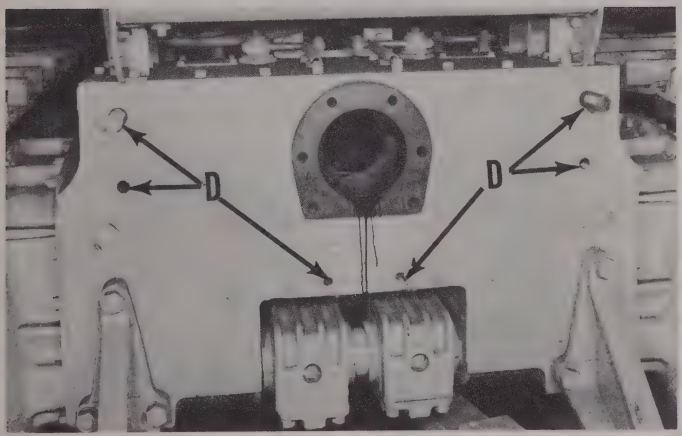
MODEL H



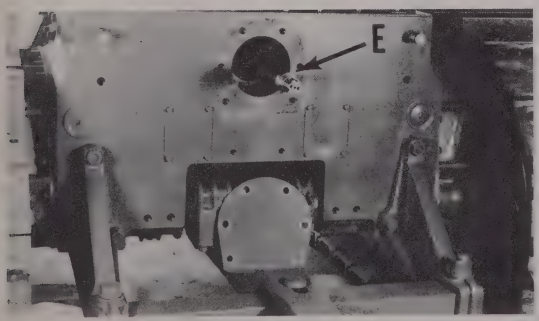
1 The Model H Front Power Control Unit is mounted on an adapter plate (furnished with the dozer) by means of 4 studs "A" and 6 cap-screws (B). The Power-Take-Off shaft of the unit goes into large hole (C) and engages with internal gear coupling furnished with the tractor.

NOTE: For complete installation instructions refer to TD-18 Dozer installation instructions.

MODEL HH & HHL



1 Remove Power-Take-Off cover plate. Remove corks (D) from 6 mounting holes. Install tie rods as shown. Apply permatex to Power-Take-Off cover area.



2 Install Power-Take-Off shaft (E) as shown. This shaft is supplied with the Power Control Unit.

Form 52102J

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

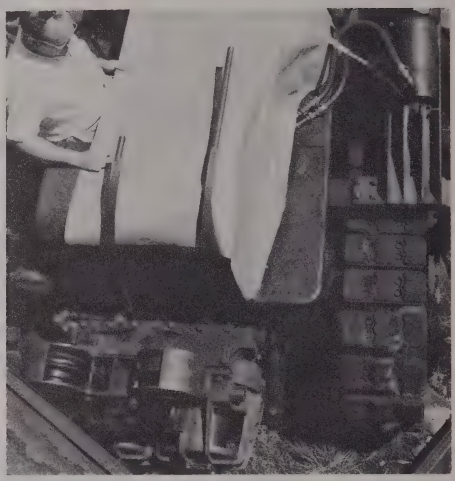
PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

INSTALLATION INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

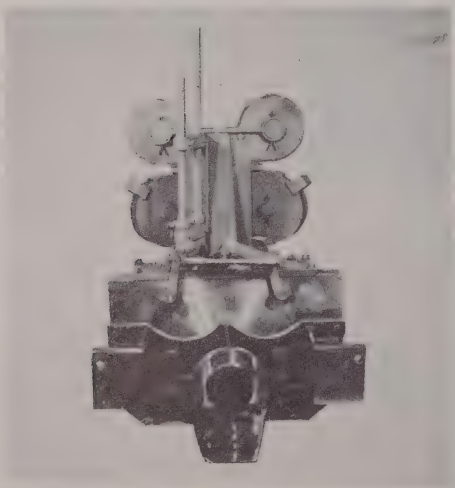
INSTALLATION OF TYPE A CONTROL LEVERS

3A Install control levers onto adapter plate as shown.

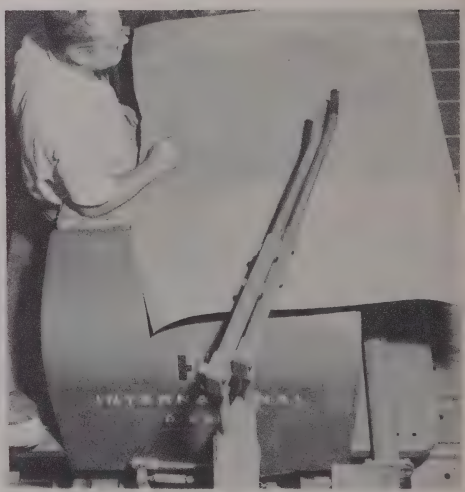


After unit is installed on tractor set control levers in neutral position as shown and tighten securely.

INSTALLATION OF TYPE B CONTROL LEVERS



3B Type "B" control rods are mounted on the units when shipped.

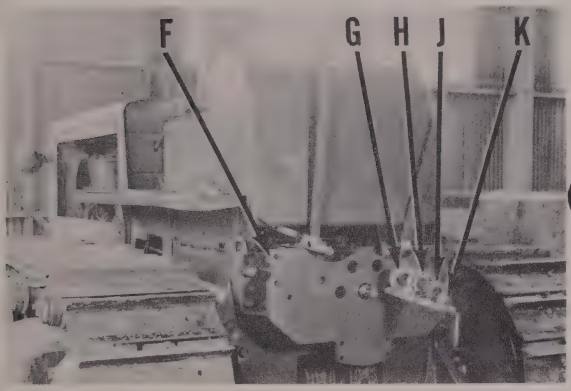


After unit is installed on tractor set control levers in neutral position as shown and tighten securely.

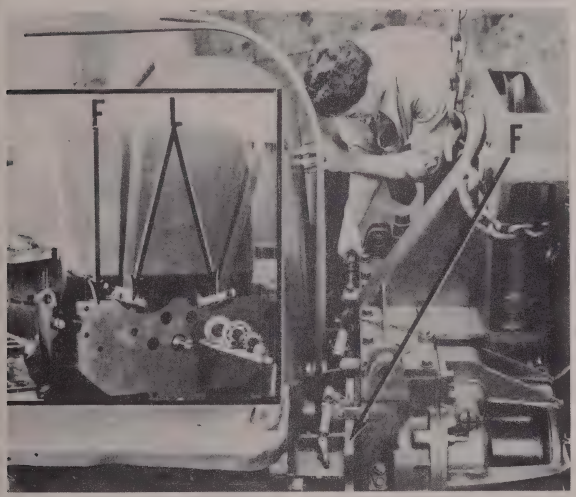
Form 52102K

INSTALLATION INSTRUCTIONS

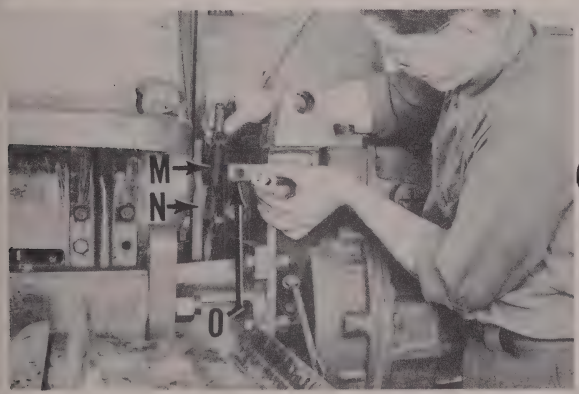
"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS



4 Install adapter plate (F) on tractor. Install oil seal carrier (G), bearing (H), gear (J) and gear retainer (K) using drilled head capscrews and lock with wire onto Power-Take-Off.



5 Install double drum unit onto adapter plate (F) using (10) 3/4 NF x 2-1/4 capscrews making sure transfer rods (L) are connected before bolting down unit tight.



6 Fasten spring (M) between control lever (N) and bracket (O), with just enough tension to support the weight of the lever. This prevents the weight of the control lever from causing a drag on the clutch and is only necessary on the left hand control lever as the right hand control lever leans away from the clutch instead of toward it.

NOTE: For Control Lever Positions see oposite page.

Form 52102L

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Form 52102M

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

LUBRICATION INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

Proper lubrication will greatly lengthen the life of any machine. The Pullman Trac-Drum is so designed that all moving parts subject to wear run in a constant bath of oil. This makes lubrication positive and thorough and the time required for service is kept at a minimum.

Only two places on the drum and four on the control assembly need attention.

GEAR CASE:

Check daily. Keep oil level with the oil level check plug E on Reference Illustration #3. Use a good grade transmission oil. Drain and refill with new oil every 1000 hours.

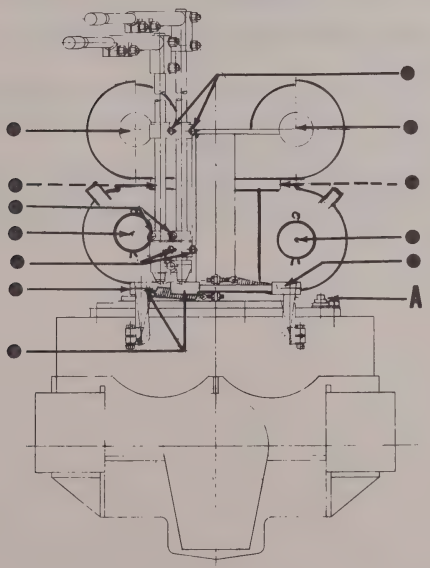
FOR SUMMER TEMPERATURE, use 140 SAE viscosity gear oil.

FOR WINTER TEMPERATURE, use 90 SAE viscosity gear oil.

FOR EXTREME TEMPERATURE, 0° or below, use 30 SAE viscosity motor oil.

FRONT BEARING:

Check every 1000 hours by removing end cap (shown on Reference Illustration #1). Use a good grade of fibre grease. DO NOT OVER LUBRICATE.



Form 52102N

LUBRICATION INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL ASSEMBLY:

Grease with zerk gun every eight hours.

- At each end of transfer rod.
- At each end of control shaft. (Front drum mountings only).

FAIRLEAD ASSEMBLY:

Grease with zerk gun every eight hours.

- Sliding sheave pins.
- Housing at upper end of swinging sheaves.
- Swinging sheave pin.
- Bearing retainer.

SPECIAL NOTES: Breather holes in the gear case oil filler plug (A) must be kept open at all times. If this holes becomes plugged it will cause the oil to leak through the seals.

NOTE: To prepare unit for dead storage follow the steps as set forth below:

1. Drain cable power unit and fill to level of oil check plug with preservative oil.
2. Seal vent at top of cable power unit gear housing.
3. Cover cable power unit with water proof paper to prevent rain from hitting unit if stored outside.
4. Apply lubricant at all grease fittings on dozer.
5. Spray all exposed pin and bolt connections with a light corrosion resistant oil.

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Form 52102P

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

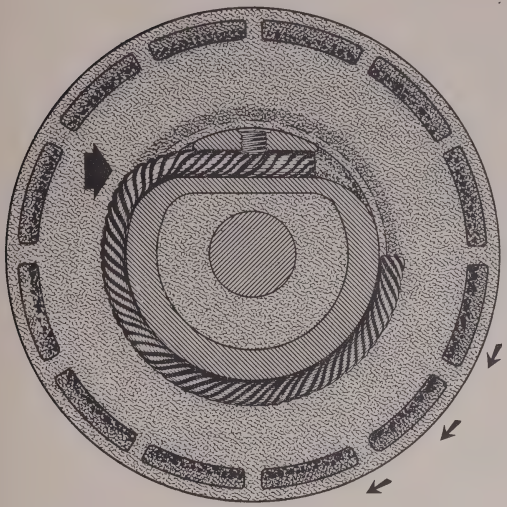
Form 52102Q

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

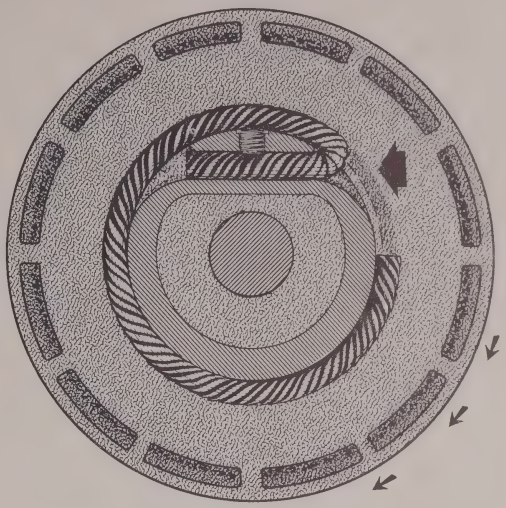
PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

CABLE ATTACHMENT

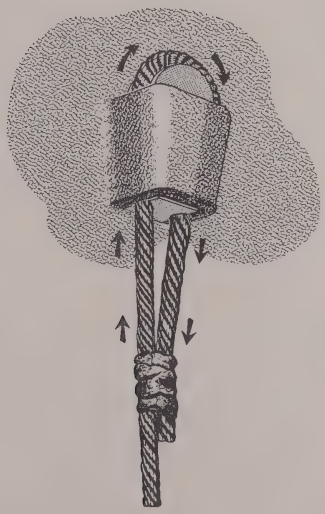
"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS



#1. METHOD OF ATTACHING CABLE TO DRUM



#2. ALTERNATE METHOD OF ATTACHING CABLE TO DRUM
(This method used only when cable continually slips out of drum when attached by method #1)



METHOD OF ANCHORING DEAD-END OF CABLE

1. First push the end of cable up thru the bottom of cable socket.

2. Then loop the end around the cable wedge and pull back down thru the cable socket and wire or tape together.

Form 52102R

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Form 52102S

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

Adjustment of the Power Control Unit

CAUTION: DO NOT OPERATE UNIT UNTIL ALL OF THE FOLLOWING ADJUSTMENTS HAVE BEEN CHECKED.

A. Do not make any adjustments until the Power Control Unit is on the tractor.

B. Keep in mind the fact that a new unit or one that has had new clutch and brake linings installed in it, will require a break - in - period during which adjustments must be made more often than is normally the case. These adjustments, checks and procedures are listed under C and D below.

C. Brake Adjustment for normal wear.

When the brake band wears down, during the break-in period or from normal wear, the 1/32 minimum clearance (see Reference Illustration #2) decreases until brake band lug touches the brake shaft. At this point the brake band begins to slip and needs readjusting.

The only adjustment necessary at this time is to turn adjusting screw "A" (see Reference Illustration #2) until the 1/32 minimum clearance is obtained. Make this adjustment with lever in neutral position and with no load on brake.

Subsequently apply a load on the brake by raising the dozer blade or scraper bowl or apron, not more than 4" off the ground (Safety Precaution - Not more than 4"). Then recheck the clearance (with feeler gauge) to insure a minimum of .020 clearance.

If the clearance is not .020 - .032 release the load and turn adjusting screw slightly, and recheck with load. Repeat until a minimum of .020 clearance is obtained under load.

D. Clutch Adjustment

To tighten the clutch, during the break-in period or for normal wear, turn the clutch adjustment worm "D" (see Reference Illustration #3) to the left (or counter-clockwise). To loosen the clutch, turn the clutch adjustment worm to the right (or clockwise).

Proper adjustment of the clutch is obtained by tightening the clutch adjustment worm until the clutch facing just begins to drag against the cable drum and then backing the adjustment worm off two or three notches (1/2 to 3/4 of a turn). This adjustment should be made with the lever in neutral position.

CAUTION: Never adjust the clutch so tight that it drags or tends to rotate the cable drum, with the control lever in neutral positon. This will create excessive heat and wear on the clutch facing, shortening the life of the unit.

E. Major Adjustment of Unit

Should the unit become completely out of adjustment due to overhauling or other causes, follow the steps as set forth below:

1. Turn the clutch adjustment worm "D" (see Reference Illustration #3) to the right (or clockwise) until the control handle has 8" to 12" of free travel.

2. Set the brake spring retaining screw (see Reference Illustration #2) until only a slight amount of tension is applied on the brake spring.

3. Turn the brake adjusting screw "A" (see Reference Illustration #2) until approximately 1/4" clearance is obtained between the brake shaft "C" and brake band lug "H" (see Reference Illustration #2).

4. Next move the control lever from the fully engaged clutch positon, toward the brake release position, until a slight pressure is felt. This will be when the roller "I" (see Reference Illustration #3) contacts the latch lever at the spot indicated by "J" (see Reference Illustration #3) and is the neutral position from which all adjustments must be made.

5. With the control lever in neutral position, back off adjusting screw "A" (see Reference Illustration #2) until approximately 1/32 clearance remains between brake shaft and brake band lug.

6. To tighten the clutch, during the break-in period or for normal wear, turn the clutch adjustment worm "D" (see Reference Illustration #3) to the left (or counter-clockwise). To loosen the clutch, turn the clutch adjustment worm to the right (or clockwise.

   Proper adjustment of the clutch is obtained by tightening the clutch adjustment worm until the clutch facing just begins to drag against the cable drum and then backing the adjustment worm off two or three notches (1/2 to 3/4 of a turn). This adjustment should be made with the lever in neutral position.

   CAUTION: Never adjust the clutch so tight that it drags or tends to rotate the cable drum, with the control lever in neutral position. This will create excessive heat and wear on the clutch facing, shortening the life of the unit.

7. Raise the dozer blade or scraper (not more than 4" off the ground as a safety precaution) to see if brake will hold it up. If brake does not hold, check the clearance between the brake shaft "C" and brake band lug "H". If you have 1/32 or more clearance between "C" and "H" then increase tension on brake spring until brake band will support the load. Do this by turning the brake spring retaining screw (see Reference Illustration #2) 1/2 turn at a time. When proper spring tension is obtained it is not necessary to change this for any future adjustments.

   When the brake band wears down, during the break-in period or from normal wear, the 1/32 minimum clearance (see Reference Illustration #2) decreases until brake band lug touches the brake shaft. At this point the brake band begins to slip and needs readjusting.

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

The only adjustment necessary at this time is to turn adjusting screw "A" (see Reference Illustration #2) until the 1/32 minimum clearance is obtained. Make this adjustment with lever in neutral position and with no load on brake.

Subsequently apply a load on the brake by raising the dozer blade or scraper bowl or apron, not more than 4" off the ground (Safety Precaution - Not more than 4"). Then recheck the clearance (with feeler gauge) to insure a minimum of .020 clearance.

If the clearance is not .020 - .032 release the load and turn adjusting screw slightly, and recheck with load. Repeat until a minimum of .020 clearance is obtained under load.

●●●

Should the brake fail to hold after carefully following the above instructions, contact your nearest service representative.

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS

INDEX

TYPE A

- MODEL HHL - CONTROL LEVERS IN NEUTRAL POSITION
- MODEL HHL - RIGHT HAND DRUM LEVER IN CLUTCH ENGAGED POSITION
- MODEL HHL - LEFT HAND DRUM LEVER IN ENGAGED CLUTCH POSITION
- MODEL HHL - BOTH CONTROL LEVERS IN TOGGLE-OUT POSITION

TYPE B

- MODEL HHL - CONTROL LEVERS IN NEUTRAL POSITION
- MODEL HHL - RIGHT HAND DRUM LEVER IN CLUTCH ENGAGED POSITION
- MODEL HHL - LEFT HAND DRUM LEVER IN ENGAGED CLUTCH POSITION
- MODEL HHL - BOTH CONTROL LEVERS IN TOGGLE-OUT POSITION
- MODEL HHL - RIGHT HAND DRUM LEVER FROM BRAKE RELEASE POSITION THRU NEUTRAL POSITION TO FULLY ENGAGED CLUTCH POSITION
- MODEL HHL - LEFT HAND DRUM LEVER FROM BRAKE RELEASE POSITION THRU NEUTRAL POSITION TO FULLY ENGAGED CLUTCH POSITION

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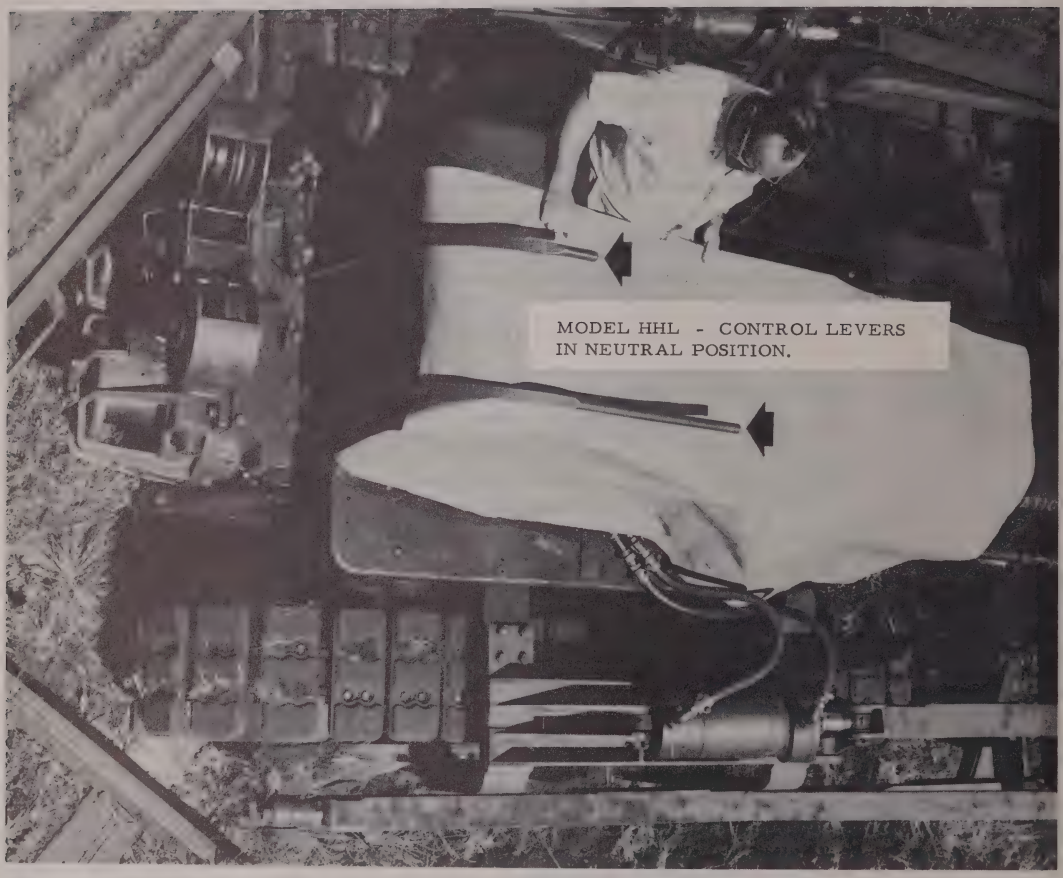
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS



MODEL HHL - CONTROL LEVERS IN NEUTRAL POSITION.

TYPE A CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE B CONTROL LEVER SYSTEM

Form 52102Y

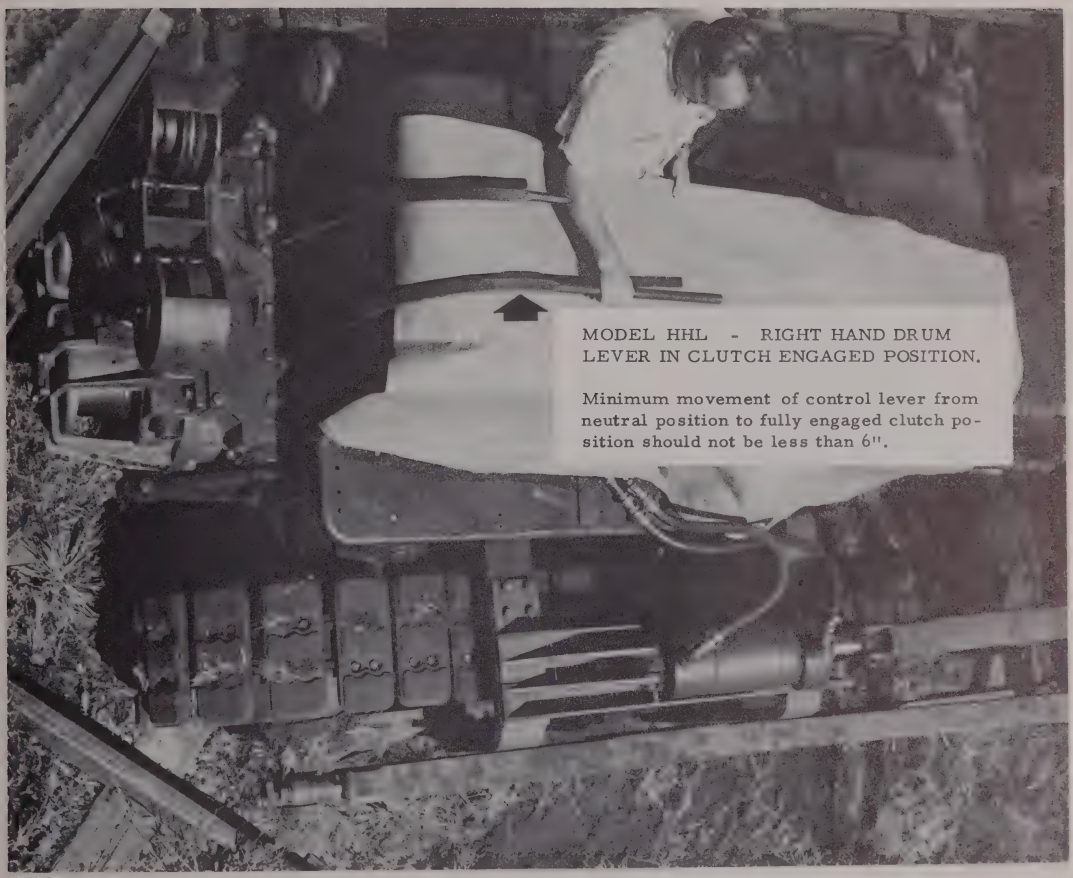
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS


MODEL HHL - RIGHT HAND DRUM LEVER IN CLUTCH ENGAGED POSITION.
Minimum movement of control lever from neutral position to fully engaged clutch position should not be less than 6".

TYPE A CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE B CONTROL LEVER SYSTEM

Form 52102Z

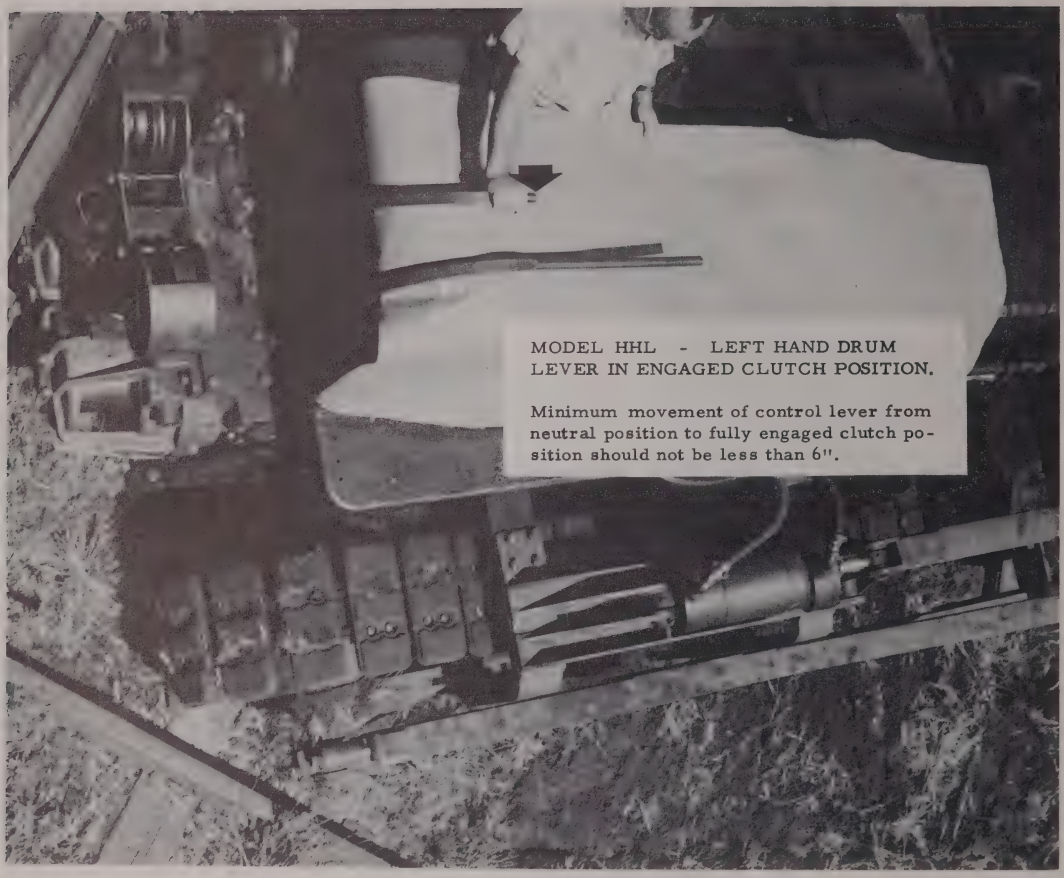
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS



MODEL HHL - LEFT HAND DRUM
LEVER IN ENGAGED CLUTCH POSITION.

Minimum movement of control lever from neutral position to fully engaged clutch position should not be less than 6".

TYPE A CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE B CONTROL LEVER SYSTEM

Form 52104A

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS

MODEL HHL - BOTH CONTROL LEVERS IN TOGGLE-OUT POSITION.

TYPE A CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE B CONTROL LEVER SYSTEM

Form 52104B

PULLMAN MATCHED EQUIPMENT FOR **INTERNATIONAL** POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS

MODEL HHL - CONTROL LEVERS IN NEUTRAL POSITION.

TYPE B CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE A CONTROL LEVER SYSTEM

Form 52104C

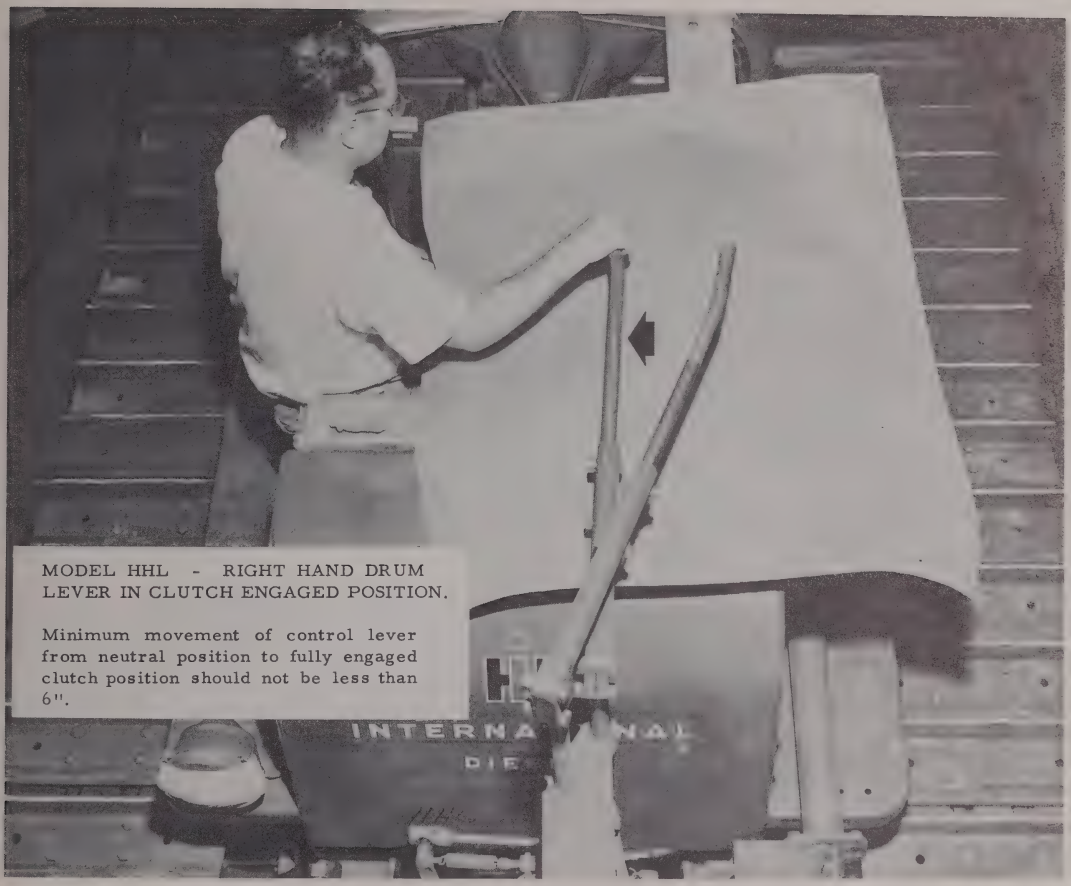
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS



MODEL HHL - RIGHT HAND DRUM LEVER IN CLUTCH ENGAGED POSITION.

Minimum movement of control lever from neutral position to fully engaged clutch position should not be less than 6".

TYPE B CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE A CONTROL LEVER SYSTEM

Form 52104D

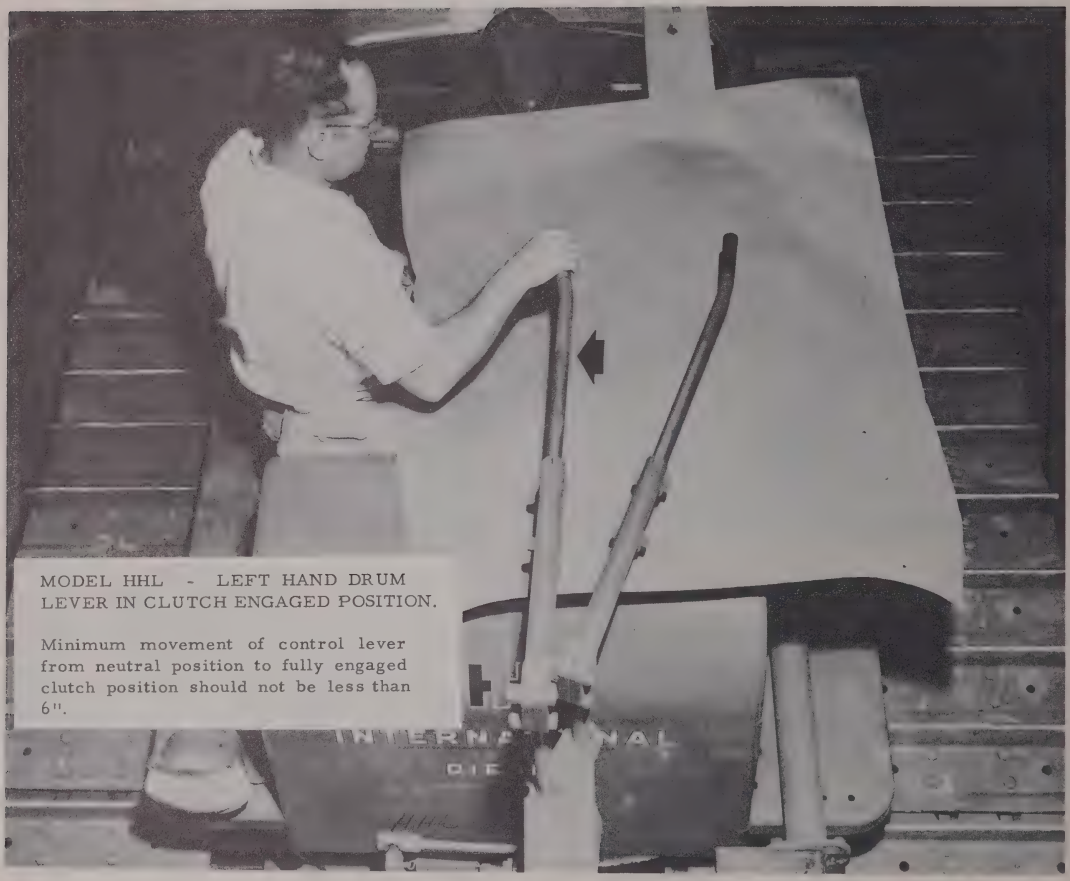
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS



MODEL HHL - LEFT HAND DRUM LEVER IN CLUTCH ENGAGED POSITION.

Minimum movement of control lever from neutral position to fully engaged clutch position should not be less than 6".

TYPE B CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE A CONTROL LEVER SYSTEM

Form 52104E

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS

MODEL HHL - BOTH CONTROL LEVERS IN TOGGLE OUT POSITION.

TYPE B CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE A CONTROL LEVER SYSTEM

Form 52104F

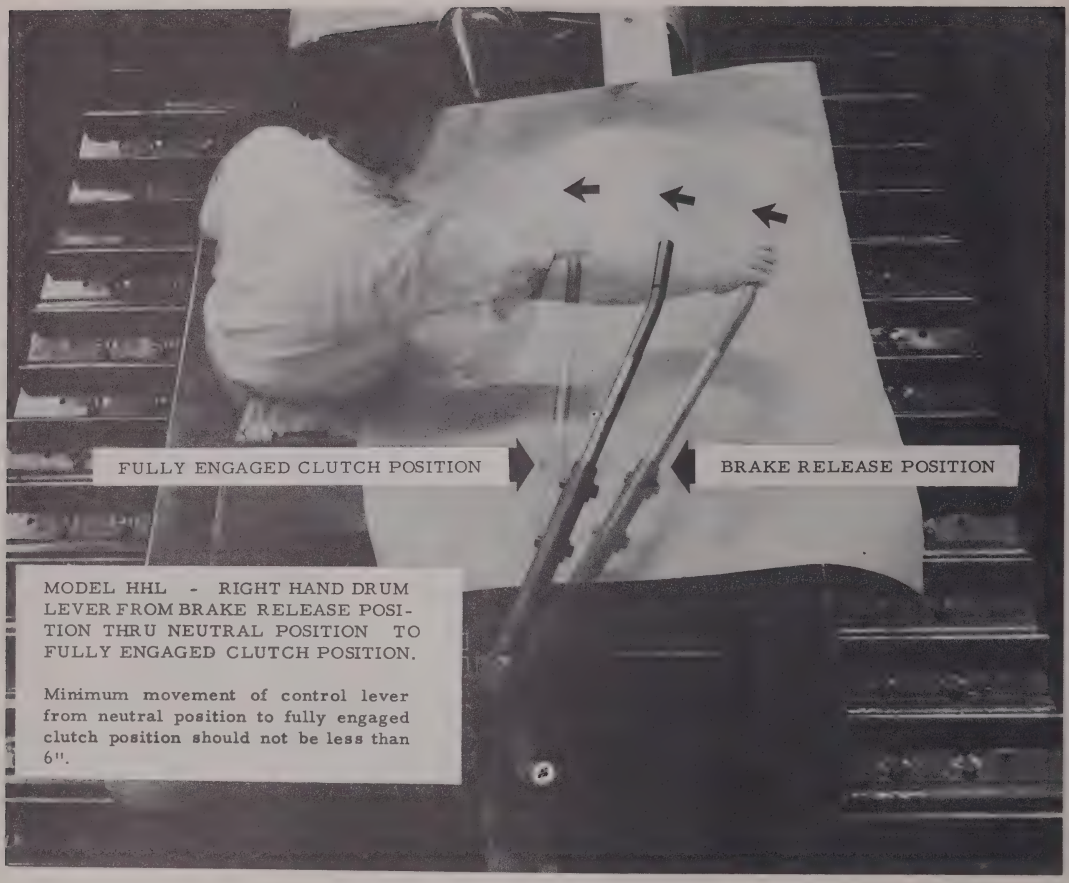
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS


FULLY ENGAGED CLUTCH POSITION
BRAKE RELEASE POSITION
MODEL HHL - RIGHT HAND DRUM LEVER FROM BRAKE RELEASE POSITION THRU NEUTRAL POSITION TO FULLY ENGAGED CLUTCH POSITION.
Minimum movement of control lever from neutral position to fully engaged clutch position should not be less than 6".

TYPE B CONTROL LEVER SYSTEM

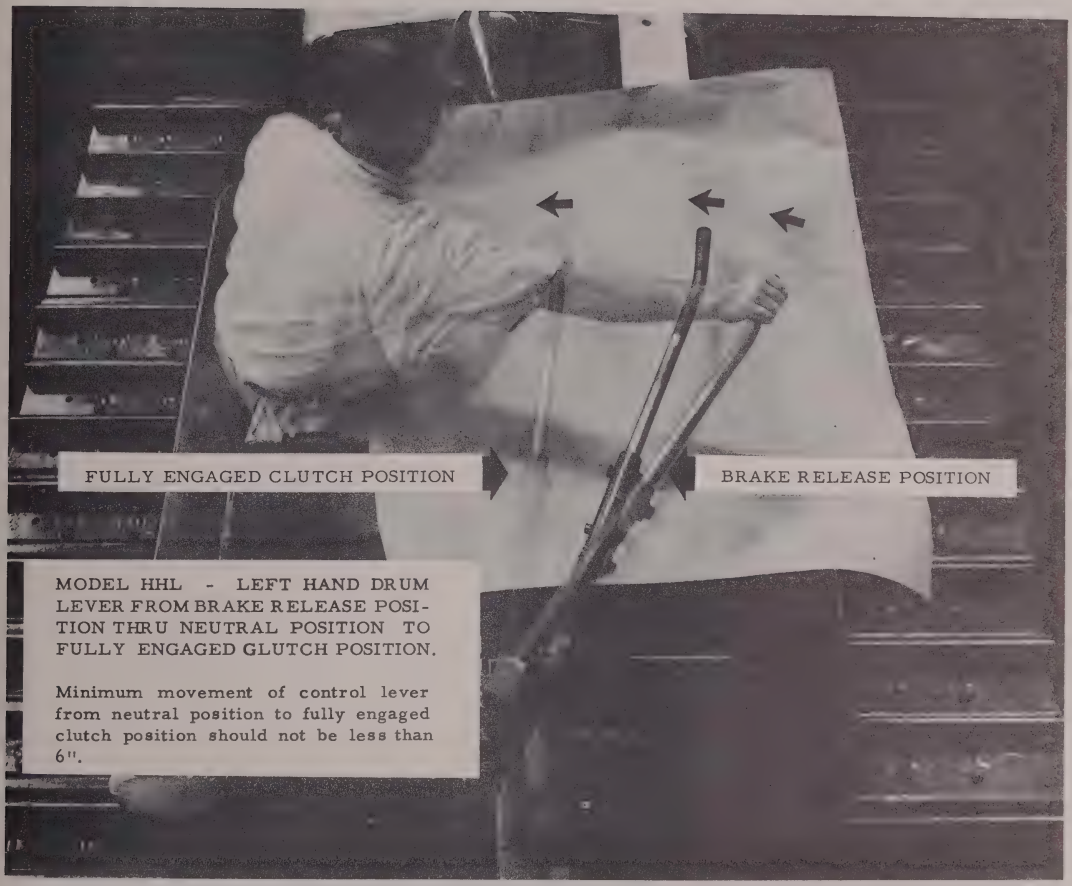
DO NOT CONFUSE WITH TYPE A CONTROL LEVER SYSTEM

Form 52104G

ADJUSTMENT INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

CONTROL LEVER POSITIONS


FULLY ENGAGED CLUTCH POSITION
BRAKE RELEASE POSITION
MODEL HHL - LEFT HAND DRUM LEVER FROM BRAKE RELEASE POSITION THRU NEUTRAL POSITION TO FULLY ENGAGED GLUTCH POSITION.
Minimum movement of control lever from neutral position to fully engaged clutch position should not be less than 6".

TYPE B CONTROL LEVER SYSTEM

DO NOT CONFUSE WITH TYPE A CONTROL LEVER SYSTEM

Form 52104H

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Form 52104J

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MAINTENANCE INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

NOTE: All maintenance steps are photographically illustrated on the following pages.

TO REMOVE BRAKE:

1. Remove four capscrews and end cap at the end of drum housing.
2. Remove the cotter pin and nut from the end of the main shaft.
3. Remove the ten capscrews from the outer rim of drum housing.
4. Back out brake spring adjusting screw; this will release brake tension from drum.
5. Remove drum housing. A puller used at the end of housing with pressure against the main shaft may be necessary because of the tightness of the outer main shaft bearing.
6. Slip the band out of the housing. To replace, reverse the process and adjust as instructed under BRAKE ADJUSTMENT FOR NORMAL WEAR.

TO REMOVE FRICTION:

1. Remove drum housing as described in the instructions for removing brake.
2. Mount a puller in the special tapped holes at the outer end of the drum and pull the drum off the shaft. This will expose the friction and friction carrier.
3. Remove the eight capscrews which hold the friction carrier in place and pull the friction carrier off the shaft.

TO REPLACE THE FRICTION AND CARRIER:

IMPORTANT: To avoid unnecessary wear and to insure maximum performance only frictions that have been properly machined after cementing or riveting should be installed in the Power Control Unit.

1. Replace the friction carrier and tighten capscrews. Lock capscrews by threading wire through the drilled heads.
2. Replace the drum. DO NOT DRIVE ON, push on as far as possible by hand and draw in place with the nut, on the end of the main shaft (Driving will damage friction screws). After drawing up as far as possible with the nut, remove the nut and place a spacer over the shaft between the nut and end of drum and again draw up as far as possible.
3. To make sure the drum has reached its proper position on the shaft, measure the distance between the end of the drum and the first shoulder on the shaft. This should be 15/16".
4. Place brake band in drum housing and bolt housing in place.
5. Replace front bearing, nut, cotter pin and end cap. Be sure this nut is drawn up tight.
6. Replace brake spring and retaining screw.
7. Adjust the brake and friction as instructed under MAJOR ADJUSTMENT OF UNIT.

Form 52104K

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

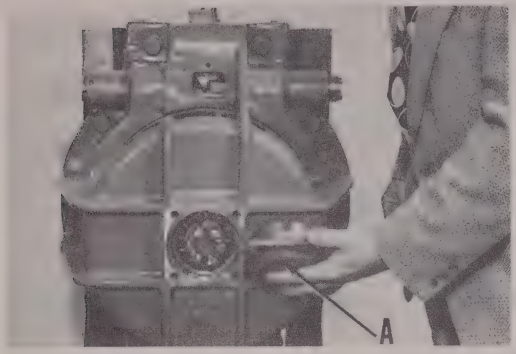
PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MAINTENANCE INSTRUCTIONS

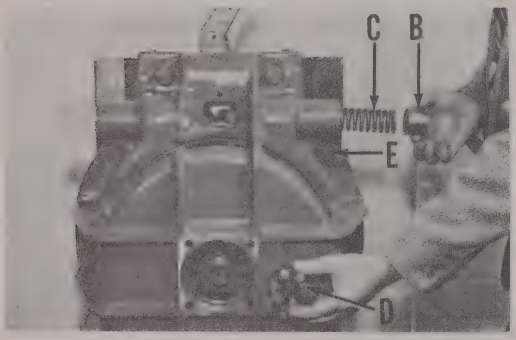
"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

THE PROCEDURE FOR SERVICING THE MODEL H, HH & HHL POWER UNITS IS IDENTICAL WITH THE EXCEPTION OF REMOVING THE OUTER FRAME.

TO REMOVE MODEL "H" OUTER FRAME



(1) Remove (4) capscrews and pry off end cap (Item A).



(2) Remove brake spring retaining screw and spring (Items B and C), timken nut (Item D) from end of main shaft. Remove (10) capscrews (Item E) from flange of outer frame.

TO REMOVE MODEL HH & HHL OUTER FRAME

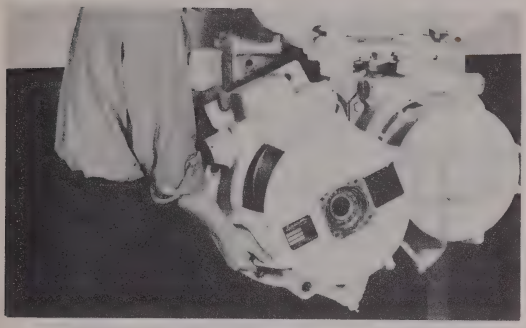
(3) Remove outside capscrews from bearing cap and bearing retainer.

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

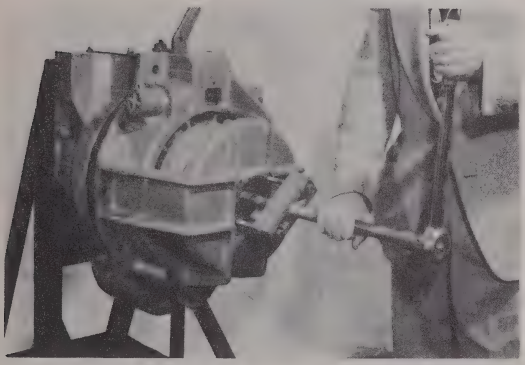
PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MAINTENANCE INSTRUCTIONS

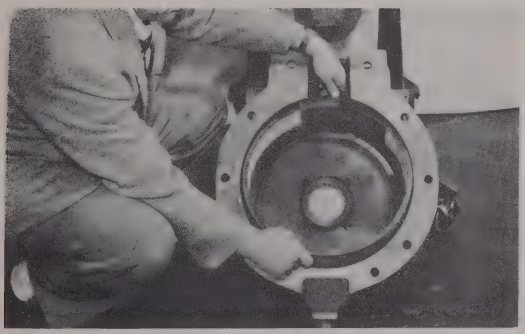
"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS



4 Remove end cap and nut, brake spring and (10) outer frame bolts. Install puller and by turning frame 1/8" it will pull off.



5 Apply puller as shown against end of shaft and pull outer frame off.



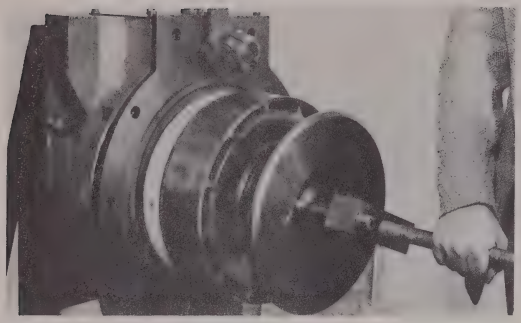
6 Brake band can then be removed from outer frame and replaced in same manner.

Form 52104M

MAINTENANCE INSTRUCTIONS

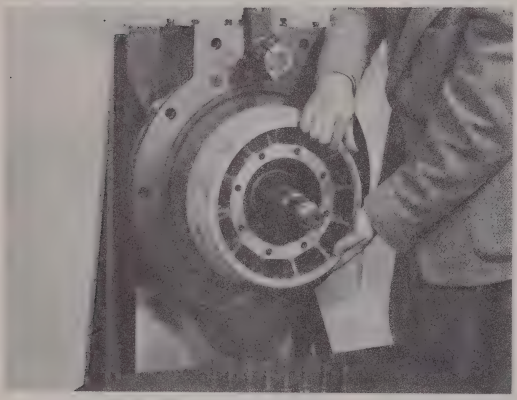
"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

TO REMOVE CABLE DRUM



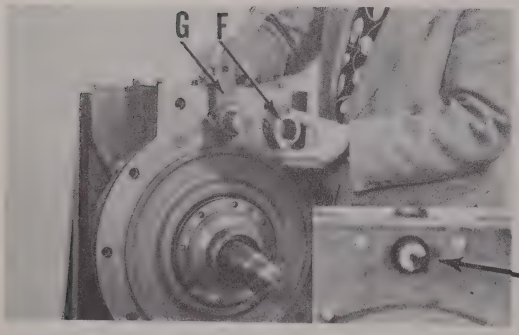
(7) Install puller as shown and pull drum from shaft.

TO REMOVE FRICTION CONE



(8) Remove lock wire and capscrews and friction cone will slip off.

TO REMOVE PILOT PLATE



(9) Remove brake release cam (Item F) and control lever (Item G).

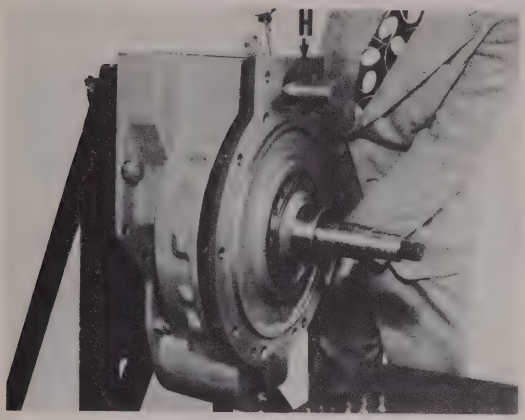
New designed brake release cam is cut into shaft as shown.

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

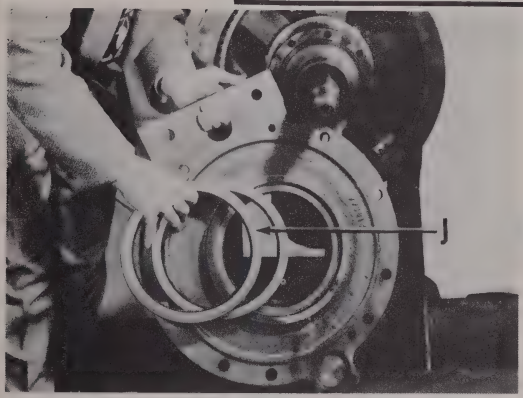
MAINTENANCE INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS



(10) Remove (4) flat head machine screws and (2) capscrews. Pilot plate (Item H) can then be pryed loose and removed.

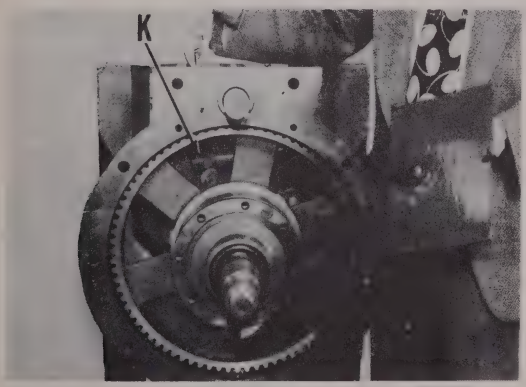
ALWAYS INSPECT OIL SEALS WHEN OVERHAULING A UNIT



(11) Main gear oil seals (Item J) are carried by the pilot plate and can be replaced after the plate has been removed. Be sure to install seals with the lip facing the main gear.

NOTE: Pilot plate is shown reversed.

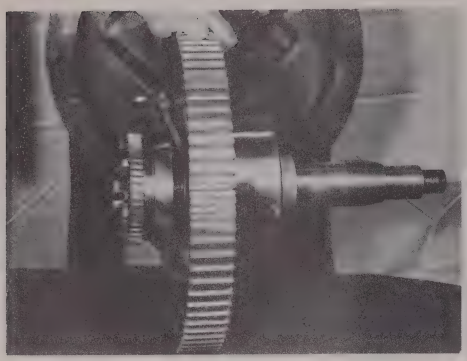
TO REMOVE THE MAIN GEAR



(12) Remove the top cover and disconnect the end of the connecting link (Item K).

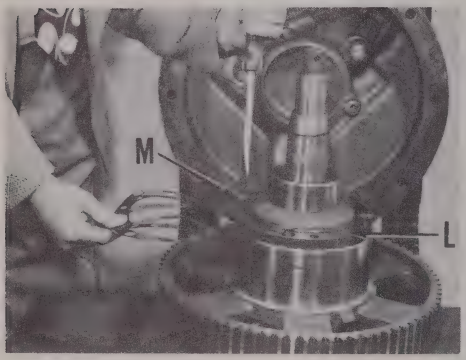
PULLMAN MATCHED EQUIPMENT FOR **INTERNATIONAL** POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS



(13) Main gear assembly is removed or installed into housing.

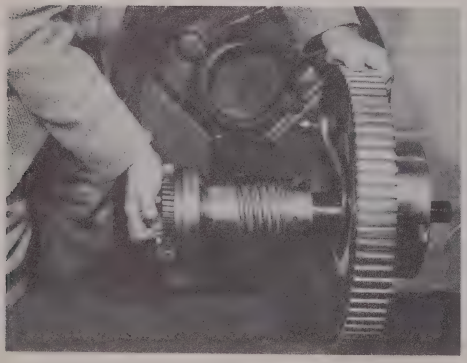
TO REMOVE BEARING RETAINER AND ADJUST BEARINGS



(14) Remove (4) flat head machine screws and bearing retainer (Item L) can be removed. Adjust bearing with screws (Item M) until a slight drag is felt. Use shims to obtain proper adjustment.

NOTE: Oil seal in bearing retainer may be replaced without removing pilot plate or main gear assembly. Install seal with lip facing main gear.

TO REMOVE FRICTION SCREW FROM MAIN GEAR ASSEMBLY

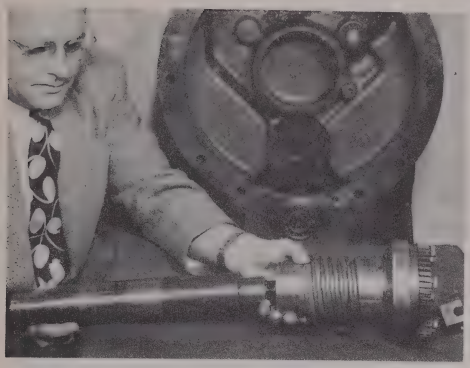


(15) Turn screw from nut and lift out.

MAINTENANCE INSTRUCTIONS

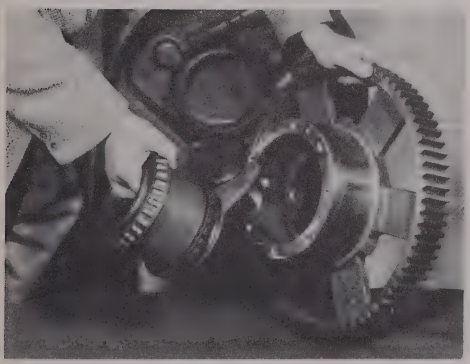
"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

TO REMOVE MAIN SHAFT FROM FRICTION SCREW



(16) Remove retaining nut and push shaft out of friction screw bearing.

(17) By removing (6) capscrews the adjusting gear is removed from the friction screw allowing bearing to be removed.



(18) To remove friction nut assembly from main gear press it out from lever side. When bearing race comes out, nut assembly will slip out easily.

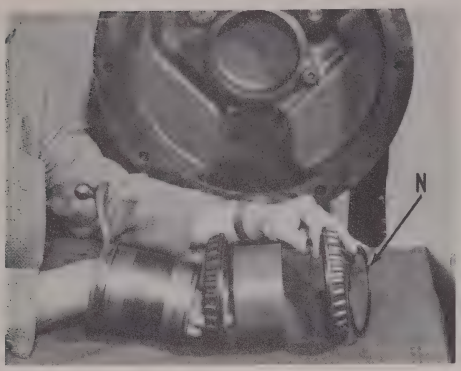
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MAINTENANCE INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

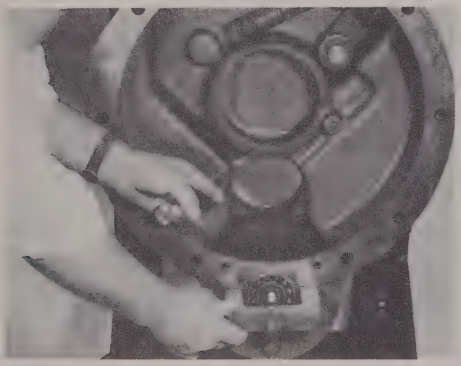
TO REMOVE BEARING ASSEMBLY FROM FRICTION NUT



(19) Remove lock ring (Item N) from end of friction nut and press off bearings, shims and spacer.

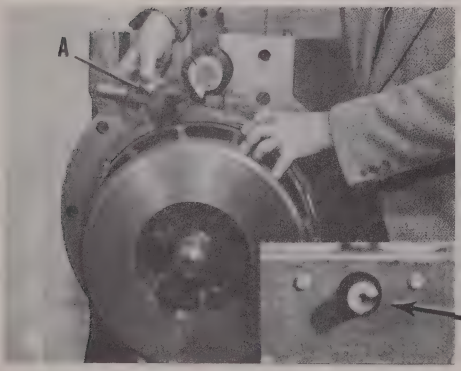
NOTE: Bearing spacer must be tight between the two bearings with snap ring place .

TO REMOVE IDLER SHAFT PINION AND RATIO GEAR



(20) Install puller in tapped hole in end of idler shaft and pull out. Gears can then be lifted out.

BRAKE BAND POSITION



(21) The photo at left shows the position of the brake band assembly after outer frame has been installed. The brake anchor link "A" rides on top of pin in the end of brake band. For installation see photo #6.

New designed brake release cam is cut into shaft as shown.

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

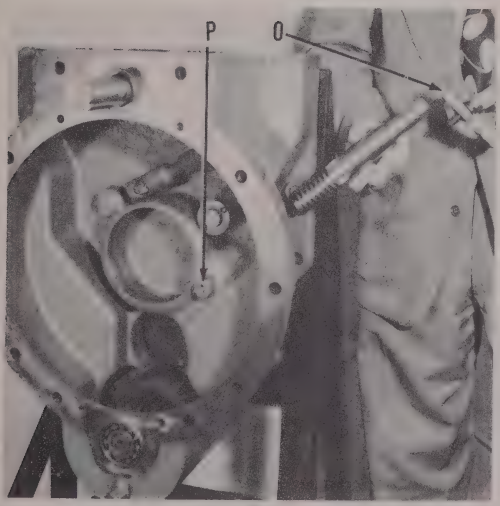
MAINTENANCE INSTRUCTIONS

"PULLMAN" MODELS H, HH & HHL POWER CONTROL UNITS

FRICTION ADJUSTMENT LOCATION

(22) This picture shows the location of friction or clutch adjusting worm. Read Adjustment Instructions for proper adjustment.

TO REMOVE FRICTION ADJUSTMENT WORM



(23) Remove friction adjusting worm retainer (Item O) countersunk pipe plug, spring and detention ball (Item P). Lift friction adjusting worm out.

CAUTION: Never take worm out unless entire control unit is dismantled. Adjusting worm should have no end play. Use shims when necessary. Be sure pipe plug (Item P) is locked in place when reassembling.

Form 52104T

Effective Serial Nos. 1430 to 7000,
A9KCU50 to A9KCU500
AB9KCU50 to AB9KCU75, & B9KCU46
& up

MODEL HHL
CABLE POWER CONTROL UNIT

Rear Double Drum

for

TD-18 International

INDEX OF PAGES IN THIS SECTION

Specifications
Intermediate Shaft Group
Drum and Friction Operating Group
Brake Operating Group
Fairlead Assembly
Housing Group
Controls, Adaptor, and Power Take-Off Group
for use with TD-18 International

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FORM 5293 V

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MODEL HHL CABLE POWER CONTROL UNIT
For Use With TD-18 INTERNATIONAL

SPECIFICATIONS:

DRUM SPECIFICATIONS:

Drum Diameter	7"
Drum Length	6-1/2"
Flange Diameter	13"

CABLE SIZE AND CAPACITY:

6 x 19 Imp. Plow Steel IWRC	1/2" x 190'

GENERAL SPECIFICATIONS:

Operation	Spur Gear Reduction
Friction	Cone, Molded Lining
Brake	Automatic Self Energizing
Brake Band Width & Diameter	2-1/2" x 13-7/8"
Lubrication	Oil Bath and Alemite
Oil Capacity	9 Qts.

LINE SPEED:

Bare Drum	323 FPM
Full Drum	524 FPM

LINE PULL: (Recommended Maximum)

Bare Drum	8,300 lbs.
Full Drum	5,000 lbs.

We reserve the right to make changes in specifications and design, without notice.

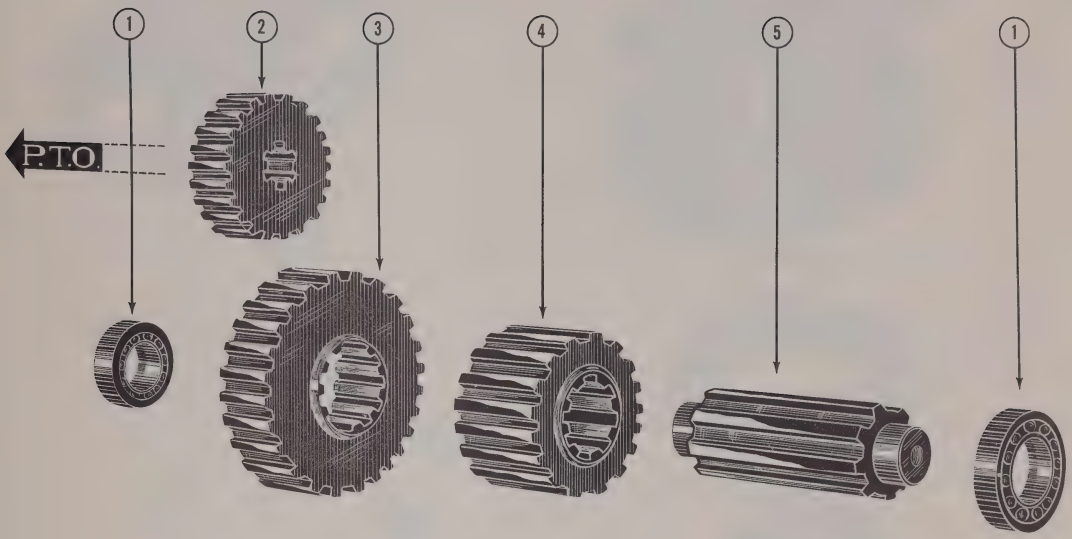
Form 5291X

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MODEL HHL CABLE POWER CONTROL UNIT

INTERMEDIATE SHAFT GROUP



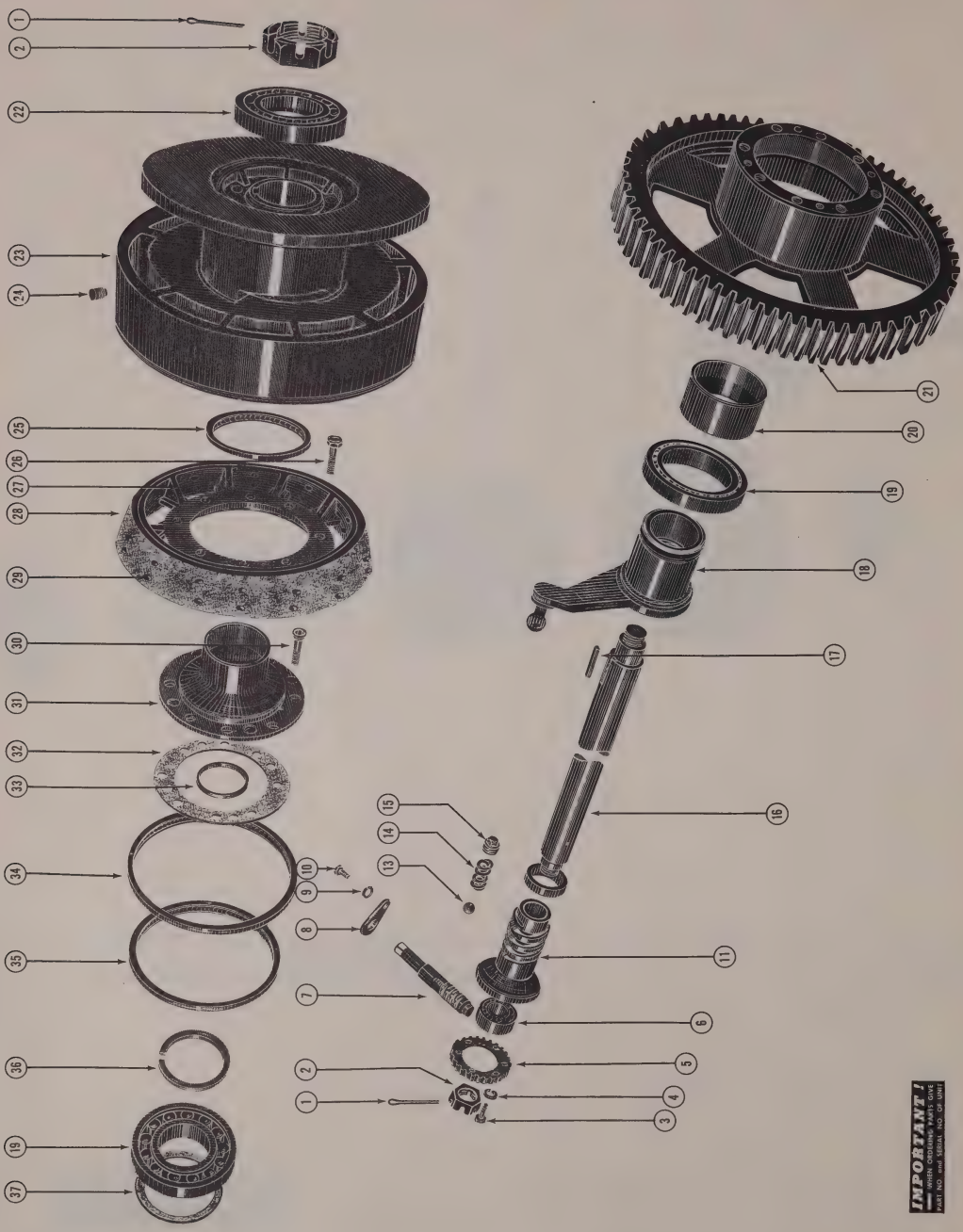
ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	2	306W	Ball Bearing
2	1	147A5	Pinion
3	1	H36047	Gear
4	1	H36034	Main Drive Pinion
5	1	H36035	Idler Shaft

IMPORTANT! — WHEN ORDERING PARTS GIVE PART NO. and SERIAL NO. OF UNIT

Form 5291Y

MODEL HHL CABLE POWER CONTROL UNIT

DRUM and FRICTION OPERATING GROUP



Form 5291Z

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MODEL HHL CABLE POWER CONTROL UNIT

DRUM and FRICTION OPERATING GROUP

ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	4	1227-2	Cotter 3/8" x 2"
2	4	K8110	Timken Nut 1-1/4"
3	12	1606-6	Capscrew 3/8" x 1-1/4" NC
4	12	1210-6	Lockwasher 3/8"
5	2	H36032	Friction Adjusting Gear
6	2	5309	Bearing
7	2	333A2	Friction Adjusting Worm
8	2	367A2	Friction Adjusting Worm Retainer
9	2	1210-8	Lockwasher 1/2"
10	2	1608-6	Capscrew 1/2" x 1-1/4" NC
	1	27C128	*Friction Nut & Screw Assy. R.H.
11	1	252C8	*Friction Screw R.H. (Clockwise)
	1	27C129	*Friction Nut & Screw Assy. L.H.
	1	252C7	Friction Screw L.H. (Counter-Clockwise)(Not Shown)
13	2	424A2	Detention Ball 9/16" Dia.
14	2	280A8	Detention Spring
15	2	363A8	Countersunk Pipe Plug 3/8"
16	2	260A23	Main Shaft
17	2	443A43	Key 1/4" x 1/4" x 7/8"
18	1	195C2	Friction Nut R.H. (Clockwise)(Inc. H26835)
	1	H26835	Control Ball
	1	195C3	Friction Nut (Counter-Clockwise)(Not Shown)(Inc. H26835)
	1	H26835	Control Ball
19	4	37625	Roller Bearing Cup
	4	37425	Roller Bearing Cone
20	2	H36030	Bearing Spacer
21	1	H36176	Main Gear (75 Teeth)
	1	H36017	Main Gear (79 Teeth)(Not Shown)
22	2	309WD	Ball Bearing
23	2	429D9	Drum
24	2	431A2	Socket Head Set Screw 5/8" x 5/8"
25	2	55192	Oil Seal
26	16	1508-8DH	Capscrew 1/2" x 1-3/4" NF Drilled Head
27	2	27A17A	Friction Carrier Complete (Inc. Rivets & Lining)
28	2	H26666	Friction Lining Only
29	26	458A11	Tubular Rivets 1/4" x 3/4" (Brass)
	26	458A13	Tubular Rivets 1/4" x 5/8" (Brass)
30	8	1406-6	Flathead Capscrew 3/8" x 1-1/4" NC
31	2	237A2	Bearing Retainer
32	as reqd	266A2	Outer Shim
33	2	55364	Oil Seal
34	2	55299	Oil Seal
35	2	55300	Oil Seal
36	2	RBC-SR-56	Snap Ring
37	as reqd	266A1	Inner Shim
	1		5/8 Allen Head Set Screw Wrench (Not Shown)

IMPORTANT! WHEN ORDERING PARTS GIVE PART NO. and SERIAL NO. OF UNIT

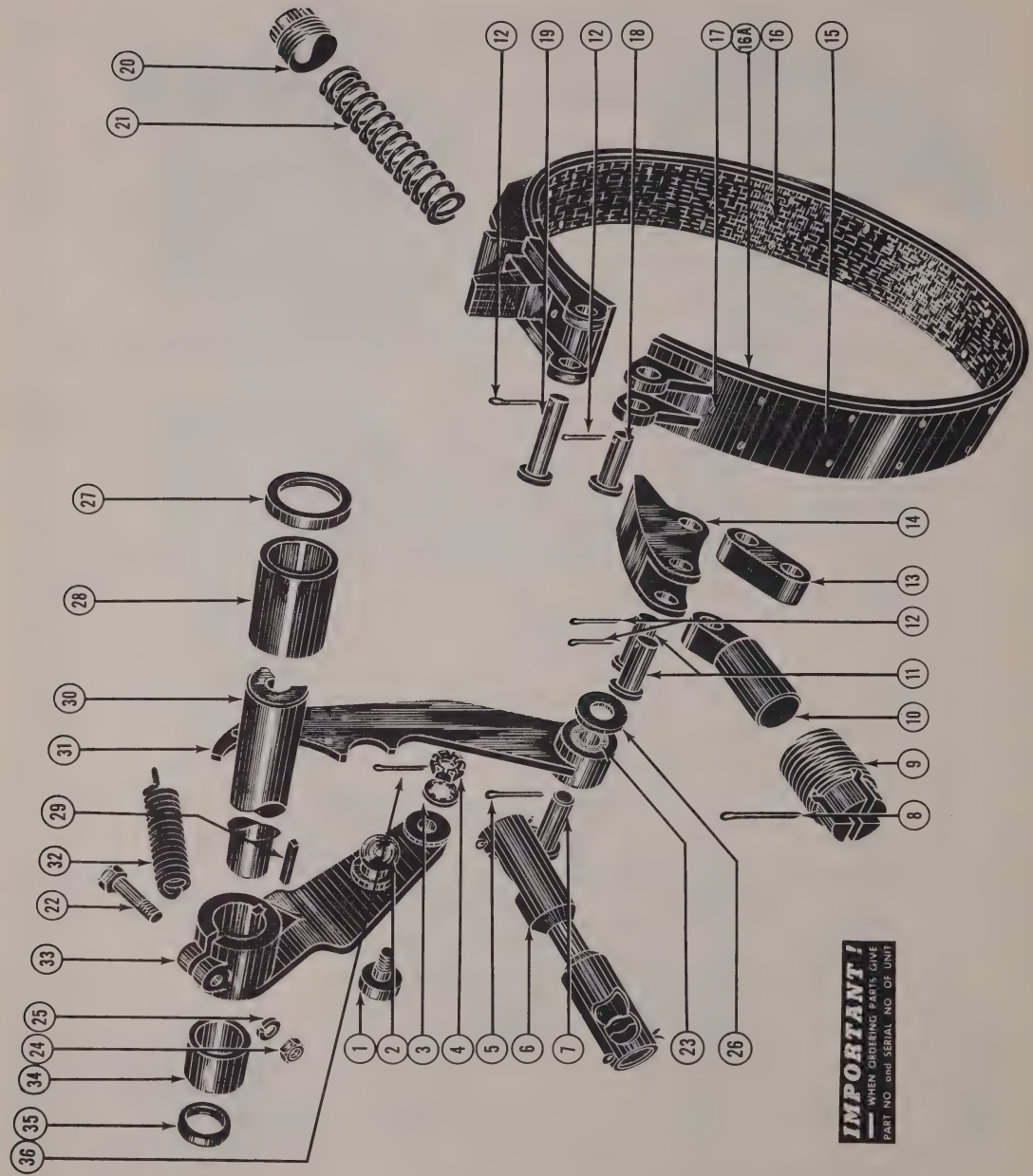
*Friction Nuts and Friction Screws are sold in sets only and are not obtainable separately.

Form 5293A

Effective Serial Nos. AB9KCU50 to 75 and B9KCU46 and up.

MODEL HHL CABLE POWER CONTROL UNIT

BRAKE OPERATING GROUP



PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Effective Serial Nos. AB9KCU50 to 75 and B9KCU46 and up.

MODEL HHL CABLE POWER CONTROL UNIT

BRAKE OPERATING GROUP

ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	2	H36082	McGill Cam Follower (Inc. Items 3, 4 & 36), or R. B. C. Cam Follower (Inc. Items 4 & 36)
2	2	H26835	Control Ball (Welded to Item 33)
3	2	1200-8	Flatwasher 1/2"
4	2	1116-5	Castellated Nut 1/2" NF or 1101-8 Nut 1/2" NF with R. B. C. Follower
5	2	1224-5	Cotter 3/16" x 1-1/2"
6	2	H36077	Friction Connecting Link (Inc. following 4 items)
	4	1222-6	Cotter 1/8" x 1-3/4" } Not Shown
	4	251A33	Plug
	8	469A1	Ball Socket
	4	H36078	Connecting Link Spacer
7	2	H36079	Latch Shaft (Welded into Housing)
8	2	1225-4	Cotter 1/4" x 3"
9	2	251A30	Brake Anchor Adjusting Screw
10	2	423A23	Brake Anchor Rod
11	4	366A7	Link Pin
12	8	1222-3	Cotter 1/8" x 1"
13	2	180A52	Brake Band Link
14	2	180A56	Brake Anchor Link
		27C84F	Brake Band Assy. (Inc. Items 15 thru 17)
15	2	448C47	Brake Band with Lugs Only
16	2	178A23	Lining Only
16A	4	178A26	Tip
17	64	458A1	Rivet 3/16" x 1/2"
18	2	366A8	Anchor Pin
19	2	366A9	Roller Pin
20	2	H36088	Brake Anchor Adjusting Screw
21	2	H36087	Brake Spring
22	2	1506-9	Capscrew 3/8" x 2" NF
23	2	A1209	Oilite Bushing
24	2	1101-6	Nut 3/8" NF
25	2	1210-6	Lockwasher 3/8"
26	2	327A15	Washer 1"
27	2	50136	Oil Seal
28	2	A1704-8	Bushing
29	2	443A22	Key 5/16" x 5/16" x 1-3/4" (Welded to Item 33)
30	2	336A47	Control Shaft
31	1	H36076	Latch Lever R. H. } (Inc. Item 23)
	1	H36075	Latch Lever L. H.
32	2	H36080	Latch Spring
33	2	H36081	Friction Lever (Inc. Key No. 443A22)
34	2	A1704	Oilite Bushing
35	2	50189	Oil Seal
36	2	1222-3	Cotter 1/8" x 1"
	1	H36147	Brake & Friction Adjusting Wrench (Not Shown)

IMPORTANT! — WHEN ORDERING PARTS GIVE PART NO and SERIAL NO OF UNIT

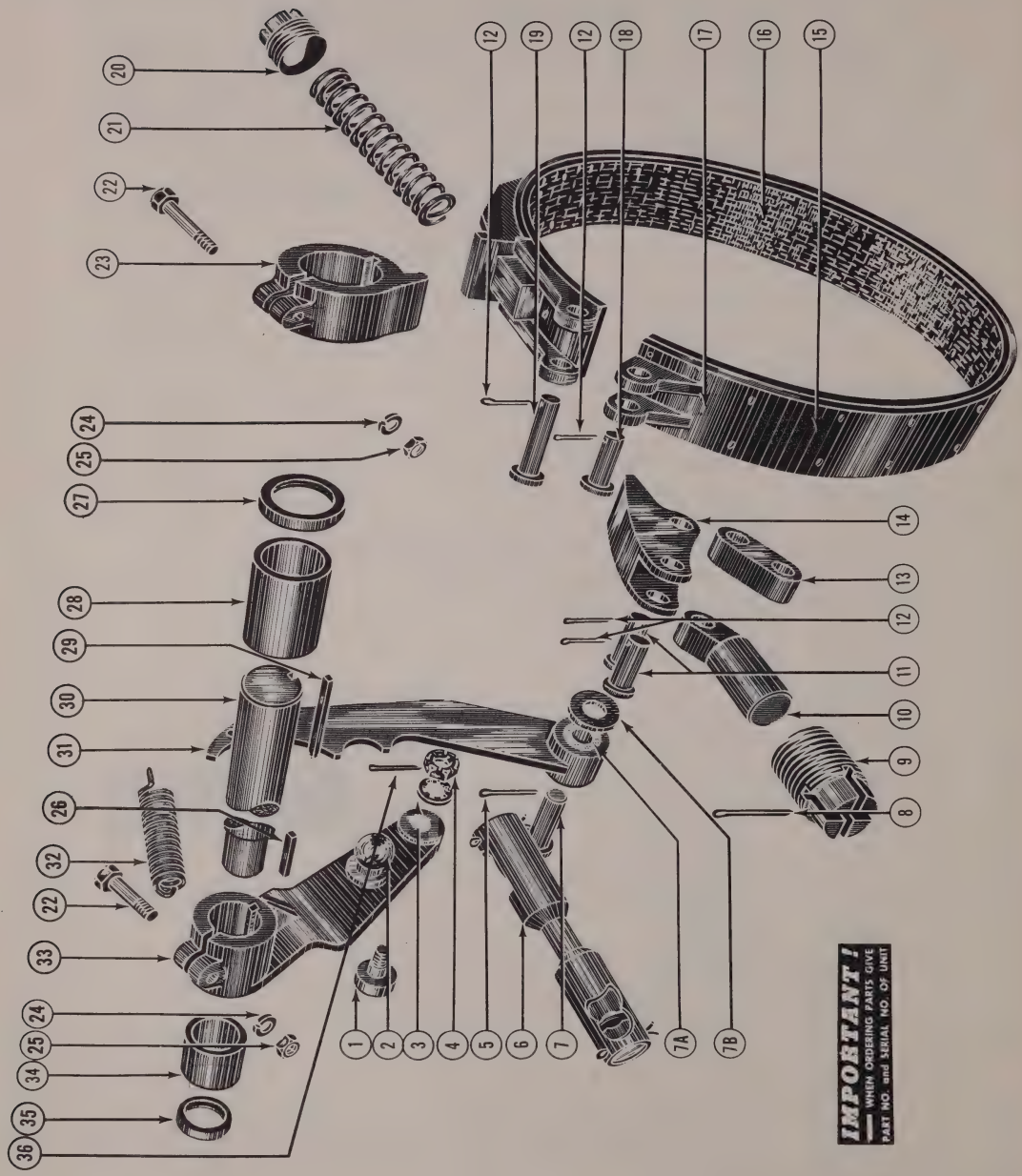
PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Effective Serial Nos. 3150 to 7000
and A9KCU50 to A9KCU500

MODEL HHL CABLE POWER CONTROL UNIT

BRAKE OPERATING GROUP



MODEL HHL CABLE POWER CONTROL UNIT

BRAKE OPERATING GROUP

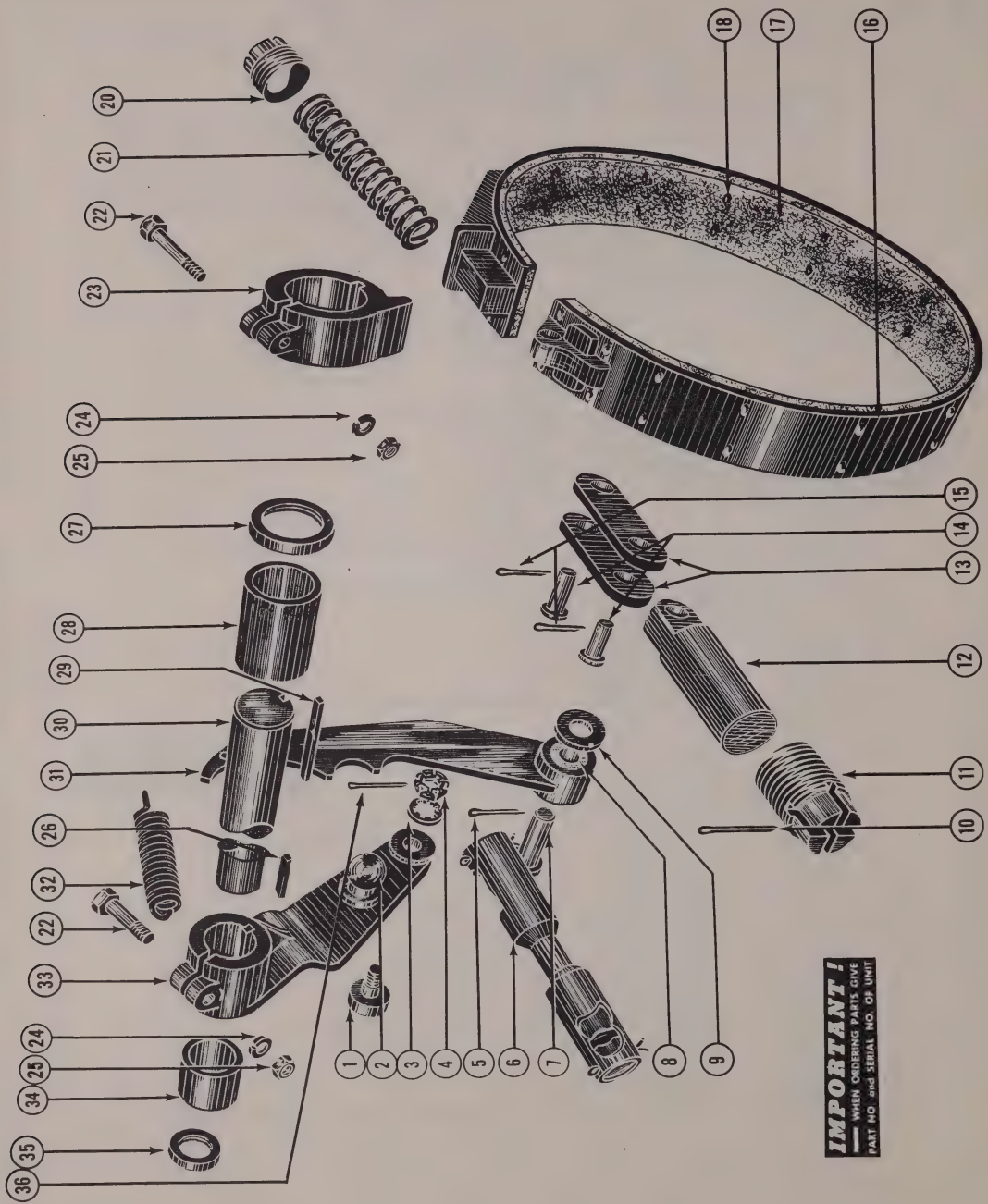
ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	2	H36082	McGill Cam Follower (Inc. Items 3, 4 & 36) OR R. B. C. Cam Follower (Inc. Items 4 & 36)
2	2	H26835	Control Ball (Welded to Item 33)
3	2	1200-8	Flat Washer 1/2"
4	2	1116-5	Castellated Nut 1/2" NF or 1101-8 Nut 1/2" NF with R. B. C. Follower
5	2	1224-5	Cotter 3/16" x 1-1/2"
6	2	H36077	Friction Connecting Link (Inc. following 4 items)
	4	1222-6	Cotter 1/8" x 1-3/4" }
	4	251A33	Plug }
	8	469A1	Ball Socket } Not Shown
	4	H36078	Connecting Link Spacer }
7	2	H36079	Latch Shaft (Welded into Housing)
7A	2	A1209	Oilite Bushing
7B	2	327A15	Washer 1"
8	2	1225-4	Cotter 1/4" x 3"
9	2	251A30	Brake Anchor Adjusting Screw
10	2	423A23	Brake Anchor Rod
11	4	366A7	Link Pin
12	8	1222-3	Cotter 1/8" x 1"
13	2	180A52	Brake Band Link
14	2	180A56	Brake Anchor Link
	2	27C84	Brake Band Assy. (Inc. following 4 items)
15	2	448C47	Brake Band Lugs Only
16	2	178A22	Lining Only 1/4" x 2-1/2" x 43-3/4"
17	48	458A1	Rivet 3/16" x 1/2"
	4	458A17	Rivet 3/16" x 5/8"
18	2	366A8	Anchor Pin
19	2	366A9	Roller Pin
20	2	H36088	Brake Spring Adjusting Screw
21	2	H36087	Brake Spring
22	4	1506-9	Capscrew 3/8" x 2" NF
23	2	470A11	Brake Release Cam
24	4	1210-6	Lockwasher 3/8"
25	4	1101-6	Nut 3/8"
26	2	443A22	Key 5/16" x 5/16" x 2" (Welded to Item 33)
27	2	50136	Oil Seal
28	2	A1704-8	Bushing
29	2	443A14	Key 5/16" x 5/16" x 3-3/4"
30	2	H36201	Control Shaft
31	1	H36076	Latch Lever (Inc. Item 7B)
	1	H36075	Latch Lever (Inc. Item 7B)
32	2	H36080	Latch Spring
33	2	H36081	Friction Lever (Inc. Key 443A22)
34	2	A1704	Bushing
35	2	50189	Oil Seal
36	2	1223-2	Cotter 1/8" x 1"
	1	H36147	Brake & Friction Adjusting Wrench (Not Shown)

IMPORTANT !
WHEN ORDERING PARTS GIVE PART NO. and SERIAL NO. OF UNIT

Form 5293E

MODEL HHL CABLE POWER CONTROL UNIT

BRAKE OPERATING GROUP



PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MODEL HHL CABLE POWER CONTROL UNIT

BRAKE OPERATING GROUP

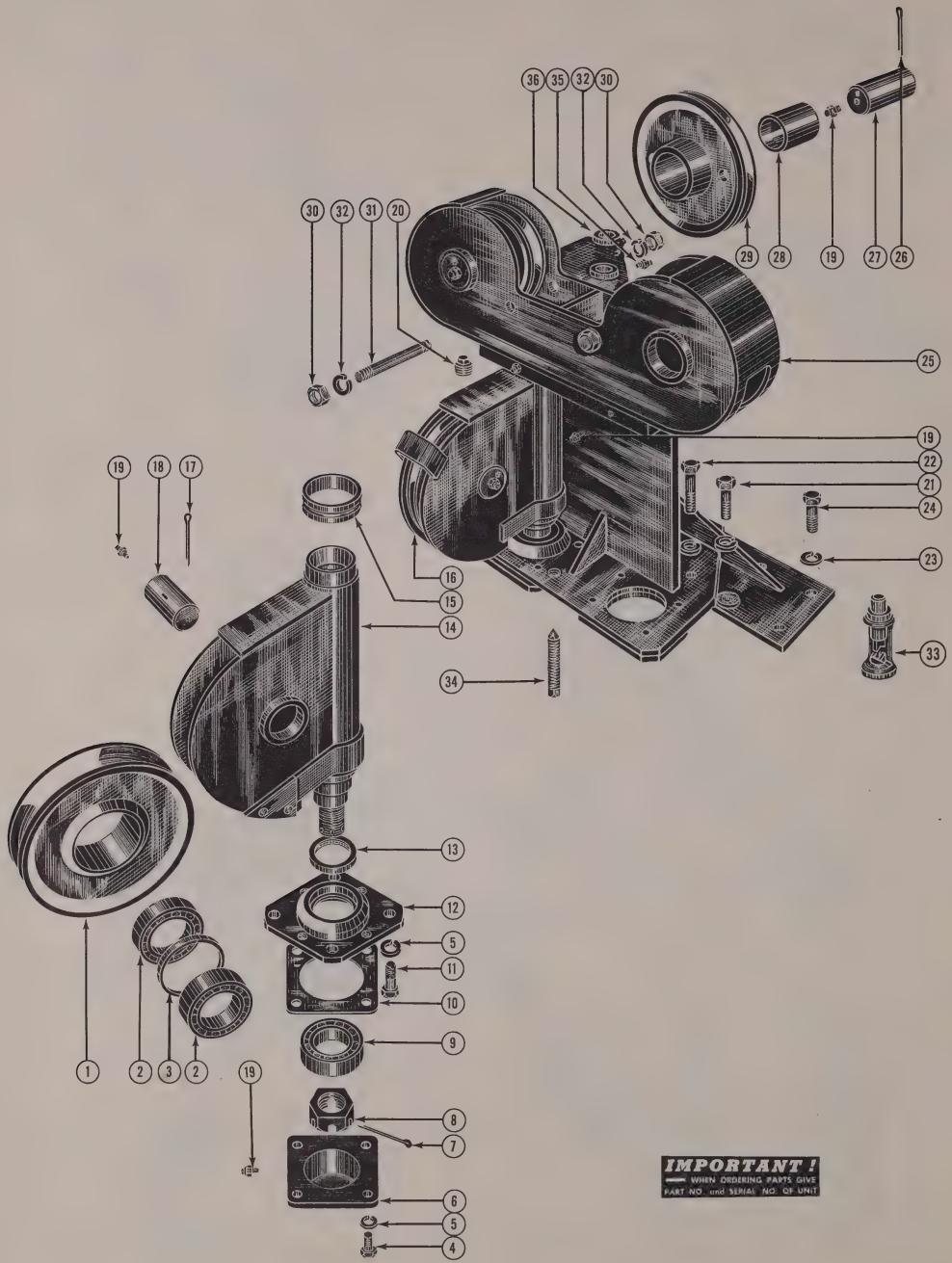
ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	2	H36082	McGill Cam Follower (Inc. Items 3, 4 & 36), or R.B.C. Cam Follower (Inc. Items 4 & 36)
2	2	H26835	Control Ball
3	2	1200-8	Flat Washer
4	2	1116-5	Castellated Nut 1/2" NF, or 1101-8 Nut Hex. 1/2" NF with R.B.C. Follower
5	2	1224-5	Cotter 3/16 x 1-1/2"
6	2	H36077	Friction Connecting Link (Inc. following 4 items)
	4	1222-6	Cotter 3/16" x 1-3/4" } Not Shown
	4	251A33	Plug } Not Shown
	8	469A1	Ball Socket } Not Shown
	4	H36078	Connecting Link Spacer } Not Shown
7	2	H36079	Latch Shaft (Welded into Housing)
8	2	A1209	Oilite Bushing
9	2	327A15	Washer 1"
10	2	1225-4	Cotter 1/4" x 3"
11	2	251A30	Brake Anchor Adjusting Screw
12	2	423A9	Brake Anchor
13	4	H36091	Brake Anchor Link
14	4	400A3	Link Pins 1/2" x 1-1/2"
15	4	1222-3	Cotter 1/8" x 1"
16	2	H36084	Brake Band Assy. (Inc. Items 17 & 18)
17	2	7910	Brake Lining 1/4" x 2-1/2" x 43-3/4"
18	50	458A1	Tubular Rivet 3/16" x 1/2"
20	2	H36088	Brake Spring Adjusting Screw
21	2	H36087	Brake Spring
22	4	1506-9	Capscrew 3/8" x 2" NF
23	2	H36095	Brake Release Cam
24	4	1210-6	Lockwasher 3/8"
25	4	1101-6	Nut 3/8" NF
26	2	443A22	Key 5/16" x 5/16" x 2" (Welded to Item 33)
27	2	50136	Oil Seal
28	2	A1704-8	Bushing
29	2	443A14	Key 5/16" x 5/16" x 3-3/4"
30	2	H36201	Control Shaft
31	1	H36076	Latch Lever R.H. } (Inc. Item 8)
	1	H36075	Latch Lever L.H. } (Inc. Item 8)
32	2	H36080	Latch Spring
33	2	H36081	Friction Lever (Inc. Key 443A22)
34	2	A1704	Bushing
35	2	50189	Oilseal
36	2	1223-2	Cotter 1/8" x 1"
	1	H36147	Friction & Brake Adjusting Wrench (Not Shown)

IMPORTANT !
WHEN ORDERING PARTS GIVE PART NO. and SERIAL NO. OF UNIT

Form 5293G

MODEL HHL CABLE POWER CONTROL UNIT

FAIRLEAD ASSEMBLY



IMPORTANT !
WHEN ORDERING PARTS GIVE PART NO. and SERIAL NO. OF UNIT

Form 5293H

MODEL HHL CABLE POWER CONTROL UNIT

FAIRLEAD ASSEMBLY

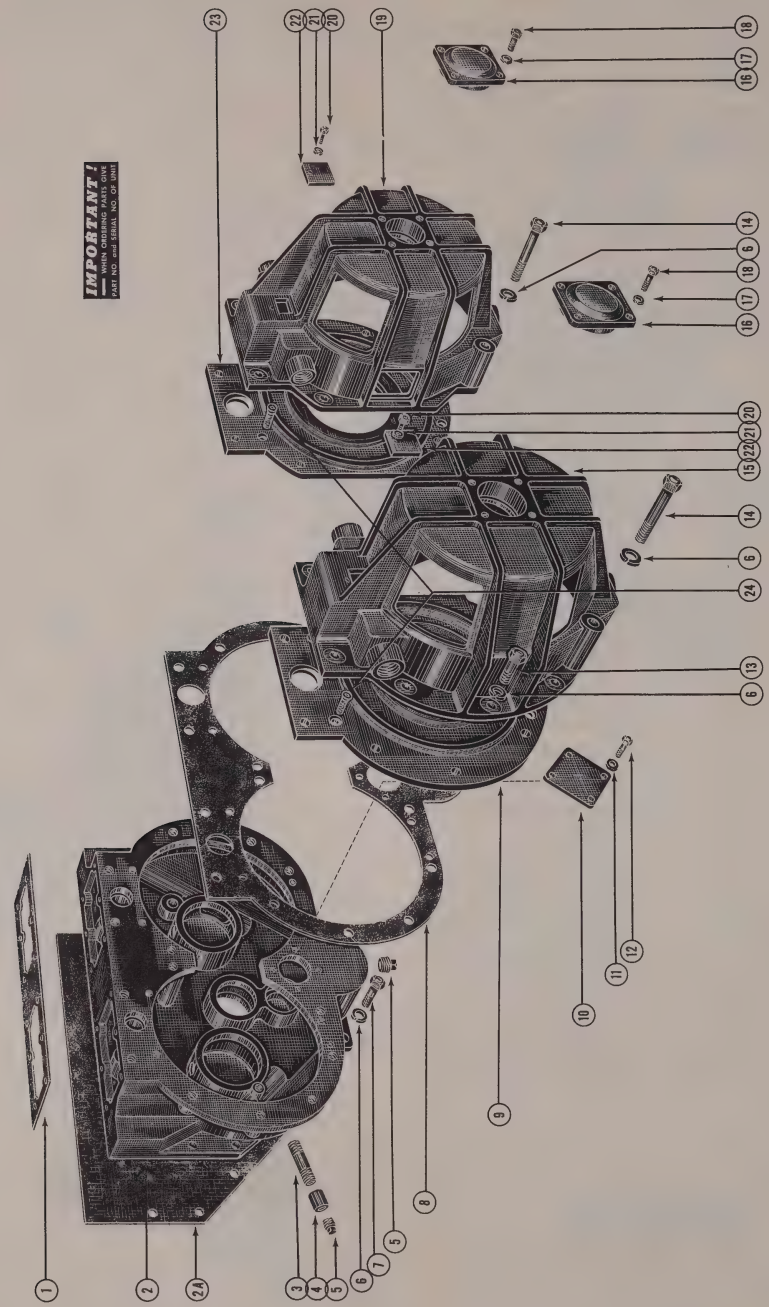
ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	2	262A6	Sheave
2	4	210D	Ball Bearing
3	2	305A2	Bearing Spacer
4	8	1508-5	Capscrew 1/2" x 1" NF
5	16	1210-8	Lockwasher 1/2"
6	2	H36186	Bearing Retainer
7	2	1227-2	Cotter 3/8" x 2"
8	2	K8110	Timken Nut 1-1/4"
9	2	5208	Ball Bearing
10	2	356A78	Bearing Retainer Gasket
11	8	1508-6	Capscrew 1/2" x 1-1/4" NF
12	2	81A2	Bearing Carrier
13	2	50301	National Oil Seal
14	1	159C14	Swing Sheave Housing R.H. Only
15	2	75A3	Bushing
16	1	159C14	Swing Sheave Housing L.H. Only
17	2	1227-5	Cotter 3/8" x 3-1/2"
18	2	204A11	Sheave Pin
19	8	1120-1	Alemite 1/8
20	1	363A6	Vented Pipe Plug 1"
21	2	1612-11	Capscrew 3/4" x 2-1/2" NC
22	3	1612-12	Capscrew 3/4" x 2-3/4" NC
23	11	1210-12	Lockwasher 3/4"
24	6	1612-9	Capscrew 3/4" x 2" NC
25	1	122D4	Fairlead Frame Only
26	2	1227-7	Cotter 3/8" x 5"
27	2	208A1	Upper Sheave Pin
28	2	75A10	Bushing
29	2	262C1	Sliding Sheave
30	4	1101-10	Nut 5/8" NF
31	2	291A1	Fairlead Frame Stud
32	4	1210-10	Lockwasher 5/8"
33	1	468A6	Cable Cutter
34	1	431A8	Set Screw 1/2" NC
35	4	1122-1	Alemite 1/8" x 67-1/2°
36	4	F1401-5	Oilite Bushing

IMPORTANT !
WHEN ORDERING PARTS GIVE PART NO. and SERIAL NO. OF UNIT

Form 5293I

MODEL HHL CABLE POWER CONTROL UNIT

HOUSING GROUP



Form 5293J

PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

MODEL HHL CABLE POWER CONTROL UNIT

HOUSING GROUP

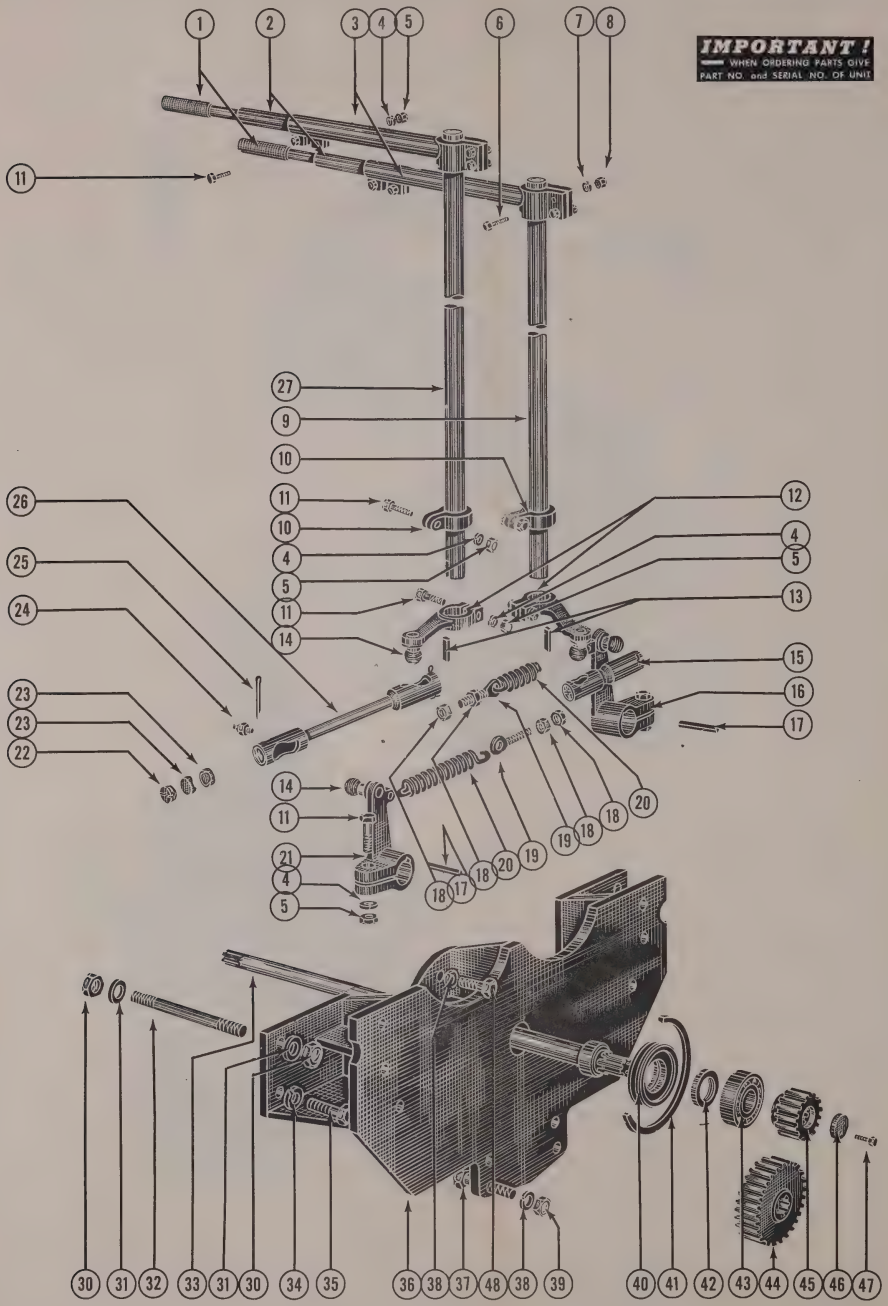
ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	1	356A17	Top Cover Gasket
2	1	157D5	Main Frame
2A	1	356A26	Gasket Adapter Plate to Power Unit
3	1	426A7	Pipe 1/2" x 4"
4	1	89A26	Pipe Coupling 1/2"
5	2	363A41	Pipe Plug 1/2"
6	26	1210-12	Lockwasher 3/4"
7	10	1512-10	Capscrew 3/4" x 2-1/4" NF
8	1	356C7	Main Frame Gasket
9	1	H36013L	Pilot Plate L. H.
10	1	H36063	Lower Cap
11	4	327A39	Copper Washer
12	4	1606-5	Capscrew 3/8" x 1" NC
13	12	1612-10	Capscrew 3/4" x 2-1/4" NC
14	4	1612-25	Capscrew 3/4" x 6" NC
15	1	137D9L	Outer Frame L. H.
16	2	H36019	End Cap
17	8	1210-8	Lockwasher 1/2"
18	8	1608-6	Capscrew 1/2" x 1-1/4" NC
19	1	137D9R	Outer Frame R. H.
20	2	1606-3	Capscrew 3/8" x 3/4" NC
21	2	1210-6	Lockwasher 3/8"
22	2	94A8	Brake Inspection Plate
23	1	H36013R	Pilot Plate R. H.
24	8	439A1	Flathead Capscrew 1/2" x 1" NC

IMPORTANT !
WHEN ORDERING PARTS GIVE PART NO. and SERIAL NO. OF UNIT

Form 5293K

MODEL HHL CABLE POWER CONTROL UNIT

CONTROLS, ADAPTOR, And POWER TAKE-OFF For Use With TD-18 INTERNATIONAL



PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Effective Serial Nos. B9KCU46 and up

MODEL HHL CABLE POWER CONTROL UNIT

CONTROLS, ADAPTOR, And POWER TAKE-OFF For Use With TD-18 INTERNATIONAL

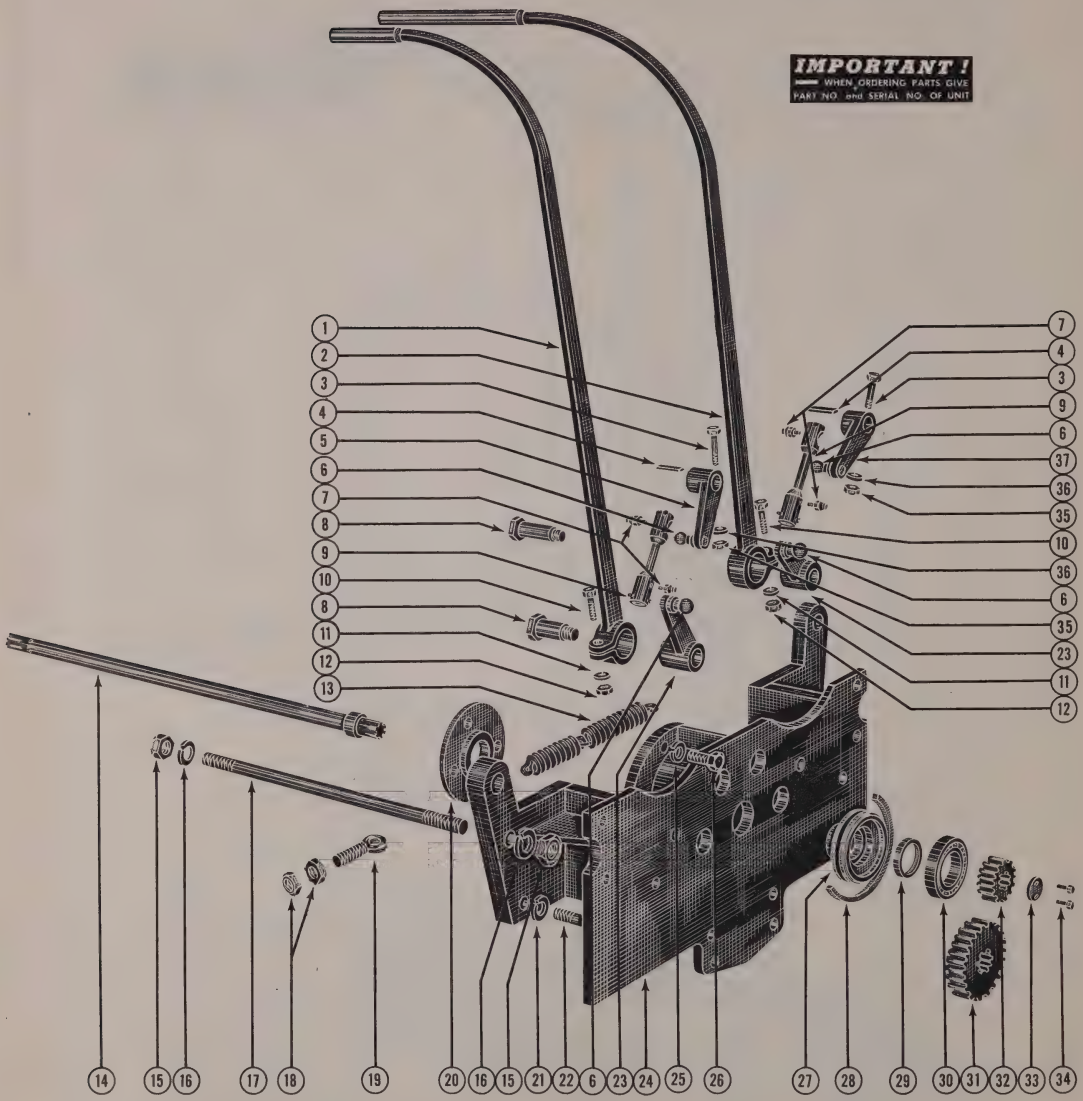
ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	2	41E97DA	Control Lever Grip I. H. C.
2	2	170C151	Hand Lever
3	2	170C150	Control Lever
4	10	1210-8	Lockwasher 1/2"
5	10	1101-8	Nut 1/2" NF
6	4	1510-10	Capscrew 5/8" x 2-1/4" NF
7	4	1210-10	Lockwasher 5/8"
8	4	1101-10	Nut 5/8" NF
9	1	336A78	Control Shaft R. H.
10	2	104A86	Set Collar
11	10	1508-9	Capscrew 1/2" x 2" NF
12	2	170A149	Control Lever
13	2	443A23	Key 1/4" x 1/4" x 1"
14	4	H26835	Control Ball
15	1	27A150	Connecting Link Assy. (Inc. Items 22, 23, 24 & 25)
16	1	170A148	Drum Control Lever R. H.
17	2	443A15	Key 1/4" x 1/4" x 1-7/8"
18	4	1113-10	Jam Nut 5/8" NC
19	2	H26816	Spring Anchor
20	2	H36080	Return Spring
21	1	170A147	Drum Control Lever L. H.
22	4	251A33	Adjusting Screw
23	8	469A1	Ball Socket
24	2	1123-1	Alemite 1/8" x 90°
25	4	1222-6	Cotter 1/8" x 1-3/4"
26	1	27A149	Connecting Link Assy. (Inc. Items 22, 23, 24 & 25)
27	1	336A77	Control Shaft, Left Hand
	4	1122-1	Alemite 1/8" x 67-1/2° (Not Shown)
	1	1120-1	Alemite 1/8" (Not Shown - Use with 27A149)
30	4	1100-20	Nut 1-1/4" NF
31	4	1210-20	Lockwasher 1-1/4"
32	2	B19552	Transmission Tie Rod
33	1	260C11	Rear Adaptor Shaft (Inc. 104A57 Collar)
34	2	1210-16	Lockwasher 1"
35	2	1616-13	Capscrew 1" x 3" NC
36	1	224D10	Adapter Plate (Inc. 213A37 Adapter Pilot)
37	10	1512-10	Capscrew 3/4" x 2-1/4" NF
38	18	1210-12	Lockwasher 3/4"
39	10	1100-12	Nut 3/4" NF
40	1	H36159	Oil Seal Carrier
41	1	114A28	Felt 1/4" x 3/8" x 12-1/2"
42	1	50115	Oil Seal
43	1	309S	Self Aligning Ball Bearing
44	1	H36047	8.2 Ratio Gear
45	1	147A5	8.2 Ratio Pinion
46	1	H36096	Pinion Retainer
47	2	1506-3DH	Drilled Head Capscrew 3/8" x 3/4" NF & Wire
48	8	1612-9	Capscrew 3/4" x 2" NC
	1	356A80	Gasket - Adapter Plate to Tractor (Not Shown)

IMPORTANT !
WHEN ORDERING PARTS GIVE
PART NO. and SERIAL NO. OF UNIT

Form 5293Q

MODEL HHL CABLE POWER CONTROL UNIT

CONTROLS, ADAPTOR, And POWER TAKE-OFF For Use With TD-18 INTERNATIONAL



PULLMAN MATCHED EQUIPMENT FOR INTERNATIONAL POWER

PULLMAN-STANDARD CAR MANUFACTURING COMPANY, CHICAGO 3, ILLINOIS

Effective Serial Nos. 1430 to 7000
& A9KCU50 to 500 & AB9KCU50 to 75

MODEL HHL CABLE POWER CONTROL UNIT

CONTROLS, ADAPTOR, And POWER TAKE-OFF For Use With TD-18 INTERNATIONAL

ASSY. ITEM	NO. REQ'D.	PART NO.	DESCRIPTION
1	1	172A26	Left Drum Handlever
2	1	172A25	Right Drum Handlever
3	2	1508-10	Capscrew 1/2" x 2-1/4" NF
4	2	443A15	Key 1/4" x 1/4" x 1-7/8"
5	1	170A17	Left Drum Control Lever
6	4	H26835	Control Ball
7	6	1120-1	Alemite 1/8"
8	2	397A5	Control Lever Pin
9	2	180A17	Drum Control Link
10	2	1510-10	Capscrew 5/8" x 2-1/4" NF
11	2	1210-10	Lockwasher 5/8"
12	2	1102-10	Nut 5/8" NF
13	1	280A11	Return Spring
14	1	260C11	Rear Power Take-Off Shaft
15	4	1102-4	Nut 1/4"NF
16	4	1210-20	Lockwasher 1-1/4"
17	2	B19552	Transmission Tie Rod
18	2	1113-10	Jam Nut 5/8" NC
19	1	H26816	Spring Anchor
20	1	213A37	Adaptor Pilot
21	2	1210-16	Lockwasher 1"
22	2	1616-13	Capscrew 1" x 3" NC
23	2	170A22	Control Lever
24	1	224D10	Adaptor Plate
	1	356A80	Gasket - For Adaptor Plate to Tractor
25	8	1210-12	Lockwasher 3/4"
26	8	1612-9	Capscrew 3/4" x 2" NC
27	1	H36159	Oil Seal Carrier
28	1	114A28	Felt 1/4" x 3/8" x 12-1/2"
29	1	50115	Oil Seal
30	1	3098	External Self-Aligning Bearing
31	1	H36047	8.2 Ratio Gear (29 Teeth)
32	1	147A5	8.2 Ratio Pinion
33	1	H36096	Pinion Retainer
34	2	1506-3	Drilled Head Capscrew 3/8" x 3/4"NF & wire
35	2	1102-8	Nut 1/2" NF
36	2	1210-8	Lockwasher 1/2"
37	1	170A16	Right Drum Control Lever

IMPORTANT !
WHEN ORDERING PARTS GIVE
PART NO. and SERIAL NO. OF UNIT

Form 5293S